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Role of Electric Utility Companies in Economic Development Within Deregulation

Jessica Alys Cheeks
University of Southern Mississippi

The University of Southern Mississippi

ROLE OF ELECTRIC UTILITY COMPANIES IN ECONOMIC DEVELOPMENT WITHIN DEREGULATION

by

Jessica Alys Cheeks

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ABSTRACT

ROLE OF ELECTRIC UTILITY COMPANIES

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This research seeks to determine if electric utilities participate in economic development, and if so, how might the trend of electric deregulation affect that relationship. The researcher reviewed the academic literature to determine that electric utilities do, in fact, participate in economic development and significantly contribute to economic growth. They participate in all areas of economic development, including business attraction, business retention and expansion, and community development; they arguably influence business development and economic vibrancy more than any alternative business in the community.

Since 1992, electric deregulation has influenced the way these utilities participate in economic development. State governments intend to stimulate the economy by diverting from electric regulation, governmental control over the industry, to electric deregulation, open market competition. However, previous electric deregulation attempts, such as in California and Texas, cause analyst to question if deregulation benefits the economy. The researcher further examined these deregulation attempts to determine if, in fact, they did affect the role of electric utilities in economic development. Deregulation did impact the way electric utilities participated in economic development in these states.

Subsequently, the researcher interviewed ten electric utility directors, five from regulated states and five from deregulated states, and conducted a website analysis of

twenty electric utility company websites: ten regulated states and ten deregulated states. The primary research questions consisted of: why do electric utility companies participate in economic development, and how does deregulation change the role of electric utilities in economic development. Electric utilities participate in economic development to maximize profits, and electric utilities in deregulated states actually participate in economic development less than electric utilities in regulated states. EUCs in deregulated states assist economic development rather than lead it, by working as an extension to the EDO. Unlike EUCs in deregulated states, EUCs in regulated states emphasized their proactive efforts to uncover leads, visit potential prospects, pursue opportunities, etc. Ultimately, electric deregulation detracts from electric utility company participation in economic development.

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CHAPTER I

INTRODUCTION

"In a competitive world, contributions for the sake of community relations and brand promotion are generally small in scale and scope," (Robinson, 2009, p. 48). David Robinson emphasizes the potential of electric utilities to "lead America's industrial heartland into economic recovery" (Robinson, 2009, 48). According to Robinson (2009) electric utilities in deregulated states, however, fail to fully employ this power for the fear of competition and stranded costs, costs that the utilities were permitted to recover through their rates but whose recovery may have been impeded or prevented by the advent of competition in the industry (Sidak & Baumol, 1995). Undoubtedly, both Investor Owned Utilities (IOUs) and Municipality Owned Utilities (MOUs) participate in economic development, and primarily for their own self interests: i.e., "more factories, office parks, shopping malls, and housing developments mean more power users, a stronger economy, and better funding for schools and state and local governments" (Robinson, 2009, p. 42). However, one utility's investments (e.g., the incumbent utility- the utility that, prior to electric deregulation, holds franchise rights to be the sole provider of power to a specific territory), may serve to benefit his competitor instead of himself in a deregulated environment. More specifically, in deregulation power service marketers, i.e., retailers, cause utilities to compete against each other. So while in regulation an electric utility might heavily invest in its sales force, in deregulation this utility's investment in a substantial sales force might be less effective. As explained by Robinson (2009), "Why…would an incumbent power company invest in a sales force when prospective customers could very well end up obtaining power from a utility marketer?

As a result, most deregulated utilities scaled back economic development efforts to providing general support for a few, targeted economic development partners" (Robinson, 2009, p. 42).

Despite this perception, deregulated electric utilities benefit from participating in economic development nonetheless. Robinson (2009) urges deregulated utilities to reengage in economic development for both their business interests and national economic recovery. Though deregulated utilities benefit differently than regulated utilities from participating in economic development, their benefits still exist because utilities are tied to their customers, and economic downturn in a community creates loss for the utility. Electric utilities best serve as the catalyst for economic recovery because of the significant role of electricity in product and business development, their reputation of reliability, their knowledge, and their distinguished incentives.

Research Purpose/Organization

This research intends to determine if deregulation reduces the role of electric utilities in economic development, and if so, how and why. It seeks to test the following hypothesis: Electric Utility Companies (EUC) in deregulated states devote fewer resources towards economic development than do EUCs in regulated states.

This research begins by determining if electric utilities do, in fact, significantly participate in economic development. It reviews academic literature to measure the authenticity of this relationship. The research shines light on electric utility regulation and considers the contribution of regulation on industry growth. The research then intends to determine the benefits of electric utility-participation in economic development, and answer the question "Why does the electric utility industry participate

in economic development more than any other industry?" Subsequently, the research shines light on electric deregulation and further explains why some governments tend to pivot toward electric deregulation. It also details some of their experiences. Lastly, this research intends to determine if the diversion to electric deregulation diminishes the role these utilities play in economic development. The following research questions will test the hypothesis:

1. Why do EUCs participate in ED?
    a. Do EUCs in deregulated states seek to increase their customer base?
    b. Do EUCs in deregulated states serve as information providers?
    c. Do EUCs in deregulated states serve as resource providers?
2. How does deregulation change the role of EUCs in economic development?
    a. Do EUCs in deregulated states provide as much technical assistance as EUCs in regulated states?
    b. Do EUCs in deregulated states develop leads as much as EUCs in regulated states?
    c. Do EUCs in deregulated states provide public services and facilitate community development as much as EUCs in regulated states?

CHAPTER II

LITERATURE REVIEW

Introduction of Electric Utility Company

The first signs of evolvement of today's sophisticated and massive electric utility industry occurred in the late 1800s. Philipson's (2005) first reference of the Electric Utility Industry is Thomas Edison's patenting of the incandescent light bulb on January 27, 1880 (Philipson, 2005, p. 72). Edison Electric Institute, the association of United States shareholder owned electric utilities, refers to Thomas Edison's first workable electric system at Pearl Street Station in 1882 as the beginning. Undoubtedly, after 1882 electric utilities began to slowly develop in urban areas across the nation (EEI, 1991).

Thomas Edison, Benjamin Franklin and many other inventors contributed greatly to the establishment of the electric utility industry and growth of electric systems technology. Franklin studied the concept of electricity early on in the 1700s, and created the electrostatic generator, a lasting theory of electricity, and much of the modern terminology, for example battery, electrician, and charge. Subsequent inventors developed technology and a system for employing electricity based on his research and creations.

In the mid 1800s, three extreme technological inventions: the power generator, the light bulb, and the transformer, initiated the use of electricity. According to Philipson (2005), "Throughout the first part of the 19th century electricity was considered an interesting curiosity but nothing more" (p. 80). However, with these three inventions it became less of a curiosity and more of a product. These technologies helped to transform

this curiosity of electricity into a service that drastically changed the United States way of life.

The first invention, Z. T. Gramme's power generator, produced a reasonable amount of electricity at an affordable cost. According to Philipson (2005), "Gramme's device used a portion of the electricity it produced to create and magnify the magnetic field inside itself, thereby dramatically increasing the electricity it created" (Philipson, 2005, p. 80). His invention made it affordable to produce electricity and expedited the evolvement of electric use by motivating other inventors to develop technology for it.

Some years later, Thomas Edison's light bulb further propelled the use of electricity. Although other light bulbs existed at the time, Edison's more practical light bulb worked exceptionally well in residential homes and businesses. The others made loud noises and illuminated excessively bright light; too much for a home or business. Now with the invention of the light bulb, the ability to light homes across the entire city became more of a reality than a fantasy. However, this growth depended equally upon the invention of an effective transformer. Electricity at high-current and low-voltage only travels over power lines for two to three blocks. With the invention of the transformer it became possible for electricity to travel across longer distances by changing it into low-current, high-voltage power. George Westinghouse, like Franklin and Edison, contributed significantly to the establishment and growth of the electric utility industry. He did so by developing the adequate transformer. Westinghouse also developed a system for transporting and distributing power; one we know today as the power grid. These necessary technologies allowed for growth in electric usage.

The first utilities developed in urban areas because once generated, electricity must be used quickly, and also because utilities, with their capital intensive nature, require a dense population of people within their service territory to recover high infrastructure costs. This made it difficult to provide electricity to rural areas with wide spread population: the severe infrastructure investments necessary to provide service to this area eliminated this option for utilities.

Therefore, during the late 1880s the majority of electric utility customers consisted of wealthy Americans living in nearby urban areas. The expenses associated with electricity in the first decade of the electric utility industry, along with wide spread resistance toward it, discouraged many people from acquiring this new service. Utilities, however, recognized a market for selling light and electricity to larger industrial customers. According to Philipson (2005), "Many of these first light companies quickly became more interested in large industrial sales than in retail sales of lighting to homeowners because of the higher revenues they could realize" (Philipson, 2005, p. 73).

During the first decade of the electric industry Edison and inventors like him shared the responsibility of not only generating, transmitting, distributing, and selling electricity, but also the responsibility to manufacture light fixtures, wires, light bulbs, etc., in order to equip customers' homes for electric service. Electric utilities installed fixtures, wires, etc. into customers' homes as an additional service charge.

In the introduction phase of electricity, society viewed it as a privilege, a premium means of doing work such as sewing and ironing. The 1920s, however, changed this perception. The invention of the radio connected the country like never before and created the need to share more information, and therefore, a greater demand for

electricity. At this point society realized the ability of electricity to do more than increase efficiency of existing functions. It also allowed for new innovative functions that absolutely depended upon electricity. "The electric utility industry began a process of intertwined growth in three mutually dependent aspects: electric power usage, electric power technology (as previously described) and electric power business, itself" (Philipson, 2005, p. 71). Said differently, growth in one aspect, for example, the electric power business, resulted from growth in the other two.

Growth of electric usage in the 1920s consisted of understanding the possibilities and applications of electricity. This included improving and developing new electric products, and repositioning society's perception of electricity. By the early 1930s society regarded electricity as a basic utility, like water and sewer, and eventually by the 1940s the public opinion that everyone should have access to electric power prevailed (Philipson, 2005). Consequently, utilities re-strategized to focus less on selling light, as they initially did (in the 1920s utilities billed customers based on the number of light fixtures used instead of the amount of electricity used) and focused more on selling electricity (Philipson, 2005, p. 88). Throughout time, from the 1950s to the 1970s, sales of electricity for air conditioning grew and greatly contributed to the electric industry's growth. Actually, today air conditioning accounts for up to half of residential electric usage (Philipson, 1998, p.30). In the early 1900s, only a small minority of homes and businesses had electric power, and the average household used less than 600 kWhr per year. Today, over 99%of households in the United States have access to electric power on a routine basis, with an average usage of 1000 kWhr per month (Philipson, 2005, p. 77).

Growth of the electric power business itself began with pioneers and technical inventions, like the aforementioned entrepreneurs and their creations. The most significant entrepreneurs include Charles Brush, Thomas Edison, and George Westinghouse. Each of these developers created machines for electricity production and/or use. As previously explained, during the 19th century few if any retail stores existed for the sale of light fixtures, internal wiring, fuses, etc. Therefore, these developers sold electrical appliances as well. They owned and funded electrical utility companies, and participated in both the manufacturing and selling of electricity. Through their inventions and rivalries among each other the national electrical system assumed the alternating current (AC) format, and their companies and those they funded established the foundation that the industry now stands on.

Eventually electric companies became more specialized; the equipment manufactures separated from the service providers. As time evolved, the country's perception of electricity and its capabilities improved, and so did electric product sales. According to Philipson (2005), "The names of utility companies and the history of their names demonstrates the change in identity and focus that electric companies have undergone throughout the 20th century" (p. 89). For example, in the 19th century electric utilities referred to themselves as "illuminating companies" (Philipson, 2005, p. 89). Early 20th century these utilities referred to themselves as "light" companies. Furthermore, in the late 20th century "power" was the appropriate reference (Philipson, 2005, p. 89). The name of a utility, Mississippi Power for example, suggests its time period of origin.

More specifically, electric utility companies (EUC) exist in different types of ownership structure, including investor-owned utilities (IOUs), cooperatively owned utilities, and community/municipal-owned utilities (MOUs), also known as public utilities. IOUs developed from the previous owner or the community selling its electric power business to a group of shareholders. Additionally, many IOUs merged together to form larger IOUs and increase competitiveness. These businesses operate as a private company, unlike MOUs that operate publically. More specifically, IOUs operate as profit maximizing entities, which suggests their interest in economic development. Shareholders of IOUs must consistently make significant investments in order to fulfill the growing demand for electricity (EEI, 1991). They assume greater risk in generating, transmitting, and delivering electricity, risks such as fluctuating stock prices, shareholder revolts, etc. As later revealed, regulation reduces risk for these IOUs by guaranteeing an adequate return on investment, reducing competition, and stabilizing electric rates.

Public owned MOUs escape much of this risk and the politics associated with stock prices and stakeholder satisfaction. Unlike IOUs, MOUs operate as non-profit maximizing entities, meaning MOUs reinvest their profits back into the community. Many counties and cities provide their own power, and the number of MOUs in the country greatly exceeds the number of IOUs. IOUs, however, produce more than half of the country's electric power. Today, approximately 4,000 EUCs exist in the United States. Approximately 109 of these are IOUs, but they provide power to nearly seventy percent of the United States population (EEI, 1991). This most likely occurs from IOUs merging together, servicing larger territories, as well as some IOUs selling power wholesale, to smaller MOUs.

Cooperatives on the other hand, such as Tennessee Valley Authority, service approximately ten percent of the national population. Cooperatives developed from President Roosevelt's New Deal passed in 1935. The New Deal intended to develop the rural areas throughout the country by developing an electrical system capable of providing power to these wide spread, rural areas. Government loaned money to these communities at a low interest rate paid off over a significant length of time, and established the Rural Electrification Administration (REA) to fund the utilities. According to the Electric Power Association of Mississippi "The Rural Electrification Administration was established strictly as a lending agency to make loans to existing electric utilities, electric power associations, or other qualified organizations to build facilities for furnishing electric power to rural areas, just as a bank is a lending agency in financing the building of homes through loans guaranteed by the Federal Housing Administration" (epaofms.com). Nearly all of the cooperatives established from President Roosevelt's New Deal still exist today. The following graph exemplifies the percentage of customers served by each type of provider.

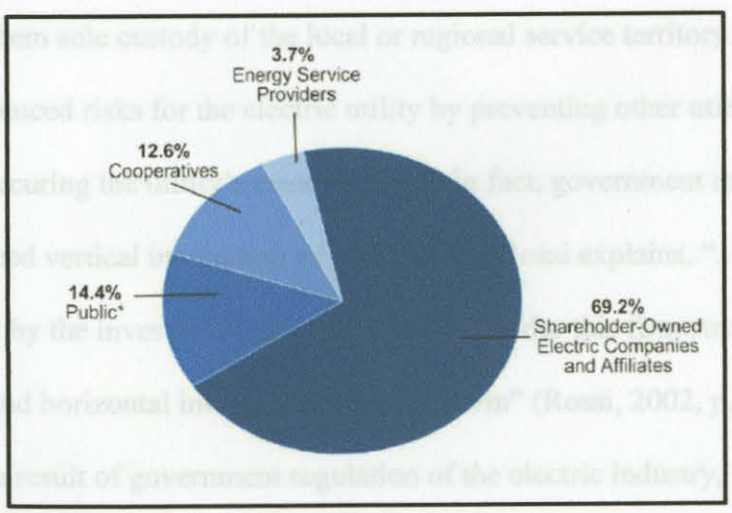

Figure 1. Percentage of customers served by each type of provider (Edison Electric Institute, 2010).

The term, capital intensive, describes EUCs perfectly because in their inception phase they invest millions and even billions of dollars into infrastructure (e.g., generators, substations, power lines, etc.). Servicing thousands and often hundreds of thousands of customers, both residential and industrial, requires significant investments. For instance, large EUCs servicing approximately 1,000,000 customers operate thirty or more large generators (machines that actually make the power), one for approximately every 30,000 customers (Philipson, 2005, p. 4). Furthermore, these EUCs must own several hundred transmission lines, thousands of distribution feeders, and hundreds of thousands of transformers and meters. The significant costs associated with this infrastructure decreases over time, however, as the number of customers increases. More specifically, the sum of these costs is divided among customers, and as the customers increase the price of electricity decreases. This reality increases the EUC's competitive advantage- naturally developing the EUC into a monopoly by making it difficult for additional electricity providers to compete in the area. Recognizing this characteristic of utilities, state and federal utility regulators granted franchise rights (i.e., monopoly rights) to local utilities, providing them sole custody of the local or regional service territory. In other words, regulation reduced risks for the electric utility by preventing other utilities from servicing the area, securing the utility's customer base. In fact, government regulation of the industry influenced vertical integration as well. As Jim Rossi explains, "...electric power was provided by the investor-owned public utility. Under this firm structure...high degrees of vertical and horizontal integration were the norm" (Rossi, 2002, p. 1771). Said differently, as a result of government regulation of the electric industry, most EUCs participated in all functions of providing electricity: electric generation, electric

transmission, electric distribution, and retail/service. Vertical integration refers to the fact that these companies operated solely of themselves from the initial process of creating electricity, to the final process of selling it to end users. Today, most utilities specialize in either one or two of these four functions. During vertical integration, however, these four functions were integrated in the sense of ownership and in terms of business and operation as well (i.e., the utility used only one accounting department to manage all functions, and costs and revenues from each function were combined together on one statement).

As previously mentioned, the following four functions make up the electric industry: generation, transmission, distribution, and service. In greater detail, electric generation refers to "the process of creating electricity" (Wade, 1999, p. 7). The various fuels used to do so include coal, nuclear, natural gas, hydro power, non-hydro renewables, fuel oil, and others (Edison Electric Institute, 1991). The process involves a power generator which converts an alternative form of energy, be it heat from burning coal, oil, natural gas, bio-waste, nuclear fission, sunlight, wind or water currents, or falling water into electricity. One generator, the size of a clothes washer possesses the capability to provide power to only a single home, however, multiple office building size generators, used by larger utilities can power buildings and homes across an entire service territory. Philipson (2005) explains, due to economy of scale in nearly every aspect of the power systems equipment, "If a particular type and size of generator is efficient a larger one of the same type will be more efficient" (p. 4).

Historically, EUCs utilize coal more than any other fuel, with 44.9% use in 2010 (EEI, 2010). Nonetheless, affordable and reliable electricity, along with environmental

sustainability depend on the use of diverse fuels within each region (Edison Electric Institute, 1991). PURPA 1978, as later discussed, promoted energy conservation and the use of natural gas in order to sustain energy resources and improve energy reliability. According to the Edison Electric Institute (EEI), the following are a few benefits of fuel diversity:

- No individual fuel is capable of meeting all of our nation's electricity demand.
- Maintaining the diversity of available fuel resources helps to ensure that we do not become too dependent on one fuel source.
- Fuel diversity protects consumers from contingencies such as fuel unavailability, price fluctuations, and changes in regulatory practices.
- Fuel choices balance environmental impacts and still assure reliable, cost-effective power supply to consumers.

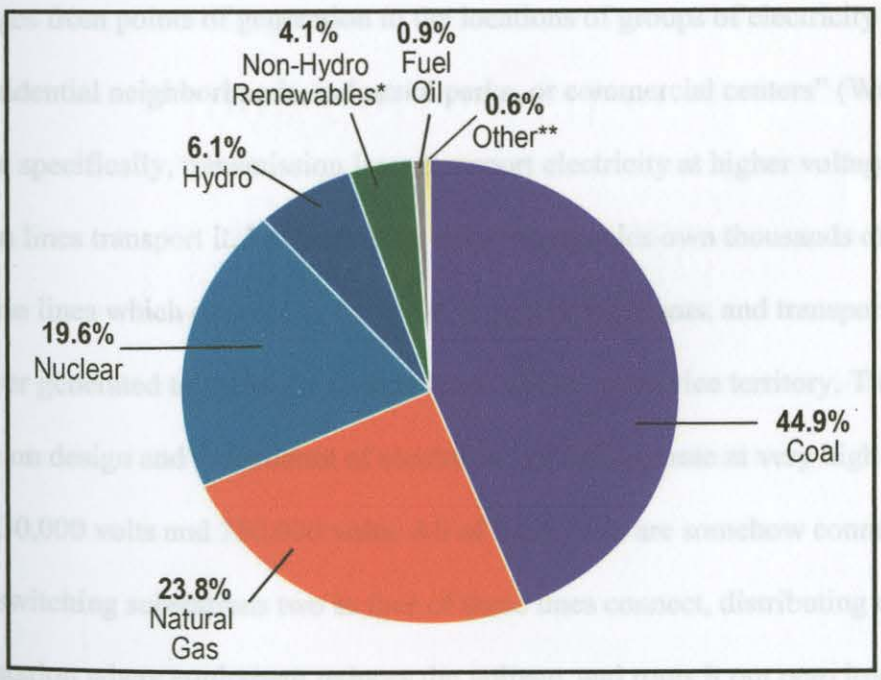

Figure 2. National Fuel Mix 2010 (Edison Electric Institute, 2010).

The EUCs fuel choice depends largely on cost. As previously explained, EUCs are capital intensive. Faye Steiner (2000) further explains, "The main cost components of electricity generation are fuel prices, capital costs, and operating and maintenance costs" (p. 147). However, each fuel type, with differing amounts of variable and fixed costs, influences when and how EUCs accrue costs differently. Therefore, diversity in generating technology and cost structure results in a "least-cost merit order," (i.e., EUCs across the world operate different kinds of generators according to variable cost) (Steiner, 2000, p. 147). This in return improves EUC efficiency and reliability, and influences lower electricity prices for consumers.

The second function of electric utilities, the transmission function, consists of transmitting electricity from numerous generation plants to the many cities and towns where the electricity is needed. EUC's transmit electricity to substations via thick wires on tall towers (EEI, 1991). This process involves "...conducting the flow of electricity at high voltages from points of generation to the locations of groups of electricity users, such as residential neighborhoods, industrial parks, or commercial centers" (Wade, 1999, p. 7). More specifically, transmission lines transport electricity at higher voltages than distribution lines transport it. Large electric utility companies own thousands of transmission lines which connect to the utility's generation plants, and transport the bulk of the power generated to the many communities within its service territory. These lines, depending on design and the amount of electricity needed, operate at very high voltages between 230,000 volts and 750,000 volts. All of these lines are somehow connected, and at certain switching substations two to four of these lines connect, distributing electricity to the substation where equipment reduces the voltage, and routs it out onto lower-

voltage sub-transmission lines. The sub-transmission lines operate at moderately high voltages between 35,000 volts and 161,000 volts, and at this reduced voltage transport electricity to distribution substations.

The third function of electric utilities, the distribution function, involves delivering electricity to individual customers. It consists of transporting electricity via thinner wires and smaller towers, called feeders, into local homes and businesses. The transmission of electricity weakens high-voltage electricity into low-voltage electricity within substations. Service transformers along each feeder further reduce the voltage level to a level reasonable for business and residential use. Electric distributors deliver this lower voltage electricity to homes and businesses; their customers.

Therefore, it is necessary to identify the fourth and final function of the electric utility company: service. Electrical retailers perform this function in a deregulated environment. Servicing the customer includes setting the actual consumer sales price, billing each customer, providing technical assistance, etc. Some sources distinguish retail sales of electricity, measuring and billing customers for the amount of electricity used, from servicing customers, installing meters, providing equipment maintenance, etc. Other sources neglect to identify either as a function of electric utilities, and only consider the first three functions. Based on a consensus of literature regarding the functions of an electric utility, retail and service can be referred to as one in the same and should be included as the fourth function of electric utility companies. The following table summarizes the four functions of the electric utility.

Table 1

The Four Basic Electric Utility Functions

Function	Description
Generation	Power production, the actual manufacturing of electric power, by converting some other form of energy, be it coal, nuclear fission, fallen water, or sunlight, into electricity.
Transmission	Moving bulk quantities of electric power long distances, as from hydro-electric power plants deep in the mountains to large cities on the coast.
Distribution	Local delivery of power to consumers involves breaking up bulk quantities of power into "household" size amounts, and routing it to homes and businesses.
Retail Sales	Or more broadly, retail customer services. Measuring and billing customers for the power delivered, and perhaps providing other services, such as energy efficiency or power quality automation.

Note: Source: Understanding Electric Utilities and De-regulation, Lorrin Philipson, 1998

Two pieces of legislation, the Public Utilities Regulatory Policies Act of 1978 and the Energy Policies Act of 1992, significantly affected the previously described industry. PURPA, a bill signed into law on November 8, 1978, powerfully affected vertical integration. This bill intended to increase cogeneration and energy conservation, and to promote increased usage of renewable energy resources in order to improve the United States' energy self-sufficiency (Cudahy, 1995, p. 421). During the 1970s the Arab Oil Embargo crippled the United States' economy and solidified the need for the country to rely more on domestic resources for energy production. This embargo, proclaimed by members of the Organization of Arab Petroleum Exporting Companies (OAPEC), intended to weaken the United States' economy in response to the U.S. decision to re-

supply the Israeli military. As a result, the U.S. realized how reliant it was on fossil fuels, and sparked an interest in energy conservation (Ryland, 2000, p. 20). Consequently, PURPA required all existing utilities to begin purchasing power from a "new class" of power producers called Qualifying Facilities or QFs (Philipson, 1998, p. 21). PURPA intended to increase the country's self-sufficiency by increasing cogeneration; taking advantage of energy wasted during electricity production. Government realized that if electric utilities purchased excess power from each other instead of each utility generating his own, then it would reduce market power abuse and improve resource efficiency. However, existing utilities resisted purchasing electricity from his competitor. Wu, Zheng, and Wen (2005) explain, "The unbundling of generation, transmission and distribution has resulted in multiple parties in the business. To foster competition and pre-empt market power abuse, some jurisdictions required generation divestiture to create more independent generation owners" (n.d.). Therefore, PURPA established QFs, private independent power producers, and required electric utilities to purchase power from the QF, if the QF sold it for less. QFs typically sold power at the rate of avoided cost: the electric utility's would-be cost for producing the power itself or purchasing it from somewhere else. Federal regulations, however, reflect less on MOUs than IOUs. Philipson (1998) explains "municipal utilities are the least regulated of all electric utilities…As a result, the quality of their electric systems and their operating practices and performance vary widely, and municipal utilities represent both the best and the worst performance in the electric power industry" (p. 12).

The establishment of QFs diluted vertical integration. Furthermore, the passing of The Energy Policy Act of 1992 (EPAct) further separated the four electric industry

functions. This Act, signed into law on October 24, 1992, affected the electric utility industry like no legislation before it. Building on the foundation laid by PURPA, it permitted electric generators to grow their business beyond one territory. The EPAct of 1992 gives the Federal Energy Regulatory Commission (FERC) the authority to order any utility to provide open access to its transmission lines. The Act did, however, protect lines within substations by declaring, "Lines into the substations, where voltage is transformed to lower voltage, are not available for use by other utilities" (Wade, 1999, p. 8). Consequently, the Act permits electric generators, other utilities, and other participants to transport power to across previously restricted lines and territories.

Origins of Regulation

Governmental management of the electric utility industry developed as a result of many different conditions, but the primary reason was arguably because, as natural monopolies, existing utilities overpowered new utilities, and often sought to maximize their profits by taking advantage of customers and the environment. Electric regulation intended to protect customers from excessive pricing and mistreatment by electric utilities. It also sought out to better manage costs and infrastructure of the electric utility. As further discussed, before regulation, EUC tendencies contradicted community interests.

Additionally, in the free market before regulation, many utilities formed in the same areas without any boundaries or uniformity. This not only increased expenses as a result of multiple utilities investing in the same area, but also endangered the community and looked unappealing. According to Ryland (2000), "Power plants and the associated infrastructure to distribute electricity were built with different equipment, voltages, and

frequencies, making systems incompatible. It was quickly determined that electric companies needed exclusive rights in geographically defined areas in order to operate more effectively" (p. 16). Charles Wade (1999) explains the first attempts toward competition before 1992, and how these problems influenced regulation. He explains, "Competition was inefficient because there were multiple poles duplicating service. Many electric companies installed poles, and ran wires, especially in commercial areas...undoubtedly...an eyesore, and probably very unsafe" (Wade, 1999, p. 12). This lack of uniformity and compatibility, in addition to environmental and customer welfare concerns determined government's involvement in the electric industry.

Additionally, before and even during regulation, EUC's possessed significant market power to harm customers, the economy, and the environment. Market power refers to a company's ability to set prices above competitive levels: levels reflecting marginal cost (Griffin & Puller, 2009). Utilities gained market power as they gained customers. As their customer base increased, their costs decreased. This allowed them to undercut smaller companies, prevent competition, and control the market. Rossi (2002) explains that regulation evolves as "the antidote if that power overextends itself and ceases to provide benefits" (p. 1771). For example, before regulation EUCs overcharged customers and misrepresented the value of their assets to stockholders. Government recognized the extent to which problems such as over-charging customers, excessive use of finite natural resources, fraudulent book-keeping, etc. would affect the national economy, and intended to protect both the industry and the people.

Regulation refers to governmental management of the electric utility industry by managing electricity rates, service territories, methods of electricity generation, etc. It

began in the 1920s as more utilities developed. Initially, regulation intended to create an organized, cost efficient industry and to shield ratepayers from discrimination, excessive electricity bills, blackouts, environmental destruction, etc. However, as time passed, the cries of coalitions began to over-power that of rate payers and environmentalist.

Regulation began with state government and Public Utility Commissions (PUCs) establishing franchise rights, setting electric rates, dictating standard service practices and more (Ryland, 2000, p. 16). Each state's PUC set electric utility prices based on Marginal Cost Structure. Said differently, the PUC required each electric utility to submit its operation costs, and after reviewing the utility's cost and information, the PUC determined each utility's sales price based on that cost and a reasonable rate of return. PUCs intended to permit EUCs to make a reasonable profit, and to also protect the customer. This consumer protection-perception changed into a producer protection-perception as large organized utilities began to put pressure on regulators.

By regulating the electric utility industry, government protected the wellbeing of both the EUC and its customers. Regulation also influenced low local electricity rates which increased the region's competitive advantage, and forced EUCs to participate in public services such as environmental protection and energy conservation awareness. Around the 1970s, awareness about typical methods of waste disposal and their negative environmental affects spread. An epiphany occurred and influenced the development of numerous legislation to better protect the environment. The implementation of legislation acts, such as The National Environmental Policy Act of 1969, The Clean Air Act (CAA), The Federal Water Pollution Control Act, and the Resource Conservation and Recovery Act of 1976, significantly changed the way of business for EUCs, and increased

governmental regulation over the industry. EUCs experienced increased costs associated with building and operating new power plants, but demand for electricity increased as well. Regulation benefited both the EUC and the customer. Both governments and business favored regulation during the early history of the industry. It further influenced growth of electricity usage by declaring the electric utility a natural monopoly and officially established a territory, restricted from competition for each EUC. It obligated EUCs to provide electricity to all customers in their territory. Regulation guaranteed EUCs a return on investment, which allowed them to participate in public services and economic development without fear of recovering these costs. It did so because utilities included these costs with those reported to the PUC; the marginal cost structure and the territory franchise rights granted to utilities reduced risks by introducing rate certainty and customer base certainty into the industry. As a result, utilities focused on building high quality systems without worry of a competitor undercutting their price.

Needless to say, however, neither customers, government officials, nor businesses approved of regulation in its entirety. According to Wu, Zheng, and Wen, "Regulation of a monopoly is seldom perfect. The fundamental objective of regulation is to seek efficiency and at the same time to ensure fairness…An appropriate regulation regime is important but difficult to implement because of conflicting objectives of investors, employees, environmentalists and customers of various classes making it impossible to develop a plan that is optimal for everybody" (Wu, Zheng, & Wen, 2005).

For a while PUCs implemented policies primarily focused on protecting rate payers and the environment. Many refer to this approach as normative-positive or consumer protection; meaning regulators choose policies that eliminate cost that market

failures press on consumers, (Vora, n.d.). The normative-positive theory suggests that EUC cost savings will trickle down to the customer, however, critics believe that in reality, EUCs purchase more expensive equipment in regulation as a result of marginal cost structure, so customers possibly pay for unnecessary expenses. In contrast, the capture theory, also referred to as the producer-protection theory, suggests that well organized EUCs can reverse the consumer protection focus, which often occurs. According to this theory, a well-organized group, i.e., EUCs, speaks as one voice, but speaks louder than many dispersed customer voices. In that case, EUCs express their concerns louder or more effectively than customers, and therefore begin to influence policies more effectively than customers. PUCs buckle under the pressure of EUC requests and eventually begin to implement policies intended to benefit the EUC instead. This characteristic most often applies to the profit maximizing IOU. Said differently, profits motivate IOUs to participate in economic development, but also motivate them to protest certain regulations; regulations such as generation capacity, cost structure, open access to transmission lines, stranded cost recovery, etc. At that point political leaders consider and sometimes divert to electric deregulation. They justify this change by proclaiming electric deregulation reduces electric rates, increases options for consumers, increases resource efficiency, etc. However, the capture theory suggests that large, well organized, profit-maximizing groups influence electric deregulation instead, and as later revealed, electric deregulation often occurs at the consumers' expense. In other words, the EUCs protest for fewer regulations contrasts with its role in economic development.

Regulated EUC in Economic Development

Government regulation of the industry, along with increases in capacity and demand for electricity created the ideal environment for EUCs to participate in economic development. They do so effectively by providing public services, recruiting businesses, facilitating new business start-ups, assisting with business retention and expansion, and investing in the community. Pittman (2007) explains, "The three legs of the economic development 'stool' are new business recruiting, business retention and expansion, and new business start-ups" (p. 19). EUC participation in these areas establishes economic growth.

Under regulation, as a result of vertical integration, government obligated EUCs to provide public services. Rossi (2000) explains, "Twentieth century U.S. regulators built on an ancient common law duty that applied to public utilities such as ferries, flour mills, and railroads, imposing on electric utilities a 'duty to serve,' an obligation to provide extraordinary levels of service to customers, especially small residential customers" (p. 29). Regulators required EUCs to consider environmental issues. For example, The National Environmental Policy Act of 1969 required electric utilities seeking federal permits for new power plants to "file and defend environmental impact statements" (Ryland, 2000, p. 20). Additionally, government required these utilities to provide a quality product and quality customer service. In deregulation, however, this public service obligation no longer exists. According to Rossi this public service obligation faces its largest challenge ever. He explains, "Yet in New York, the natural gas industry's recent introduction of retail competition has already been alleged to adversely affect quality of gas service essential to many Ney Yorkers for heating, leading to a

lawsuit against the state by consumer advocates" (Rossi, 2000, p. 27). In deregulation, as later revealed, EUCs continue to participate in public services in an effort to gain political good will.

The Arab Oil Embargo of 1973 forced EUCs to promote energy conservation. This legislation further increased costs for EUCs as well as their public services. For example, in 1978 the United States government passed the National Energy Conservation Act requiring electric utility companies to provide free energy conservation services to customers in an attempt to reduce the growing demand for electricity. This Act exemplifies how regulation forced IOUs to participate in public service activities that, in fact, did not contribute to their bottom line.

Needless to say, EUCs soon realized the benefits of participating in economic development; in regulation it's the only way to grow the business. Ryland (2000) explains how electric utility companies realized, mid-20th century, that by participating in Economic Development they proactively increased their customer base (Ryland, 2000, p. 12). By the 1950s, with record increases in energy production and consumption, EUCs around the country competed for new business developments and expansions. They marketed their impressive electric rates and reliability measures to attract new companies to the area. The increase in energy prices influenced by increases in oil prices, forced businesses to consider energy costs as a primary determinant of their relocation or expansion plans. According to Ryland (2000) "Over time economic developers and site selection consultants began viewing the electric utility companies as not only energy providers but also information sources" (p. 14).

In Portland General Electric Company's 1979 manual, *Locating or Relocating Your Business,* Dr. Weber directs this document towards prospective businesses looking to relocate or expand. He advises these businesses on issues to consider and provides a resource for further information and assistance. This manual exemplifies the extent to which electric utility companies participated in business recruitment and expansion after the energy crisis during the 1970s. Figure 3 exemplifies Weber's approach.

Grade each factor: 1 (lowest) to 10 (highest)
Weigh each factor: 1 (least important) to 5 (most important)

	Factors	Grade	Weight
1	Centrally located to reach my market	____	____
2	Raw materials readily available.	____	____
3	Quantity of available labor.	____	____
4	Transportation availability and rates.	____	____
5	Labor rates of pay/estimated productivity	____	____
6	Adequacy of utilities (sewer, water, power, gas).	____	____
7	Local business climate.	____	____
8	Provision for future expansion.	____	____
9	Taxation burden.	____	____
10	Topography of the site (slope and foundation)	____	____
11	Quality of police and fire protection.	____	____
12	Housing availability for workers and managers.	____	____
13	Environmental factors (schools, cultural community atmosphere).	____	____
14	Estimate of quality of this site in years.	____	____
15	Estimate of this site in relation to my major competitor.	____	____

Figure 3. Rating Sheet on Sites [source: Volume 2 of MP (Series) (United States. Small Business Administration. Office of Business Development) Issue 2 of Management aids].

In this document Weber (1979) details the following proper procedure for business relocation: beware of personal preferences, know your market, know your labor force, assess transportation methods, assess the location of your raw materials, examine

the site, assess the community's interest, evaluate the factors, consider the future, use a score sheet, distinguish overemphasized factors, measure the benefits of buying to leasing and relocate for growth (i.e., remain at a specific location only until the factors dictating that location no longer outweigh the advantages to be gained by moving) (Weber, 1979, p. 3).

This role EUCs begin to play in economic development resulted from business migration and their effort to re-gain businesses lost. As the price of electricity increased, businesses begin to relocate to more cost efficient areas. EUCs begin to work diligently at attracting new businesses into their service area. After the energy crisis of the 1970s, many businesses migrated from the northeast where energy costs exceeded those of the south. As a result, EUCs strategized to incentivize businesses to locate in their territory. They discounted electricity rates and worked directly with businesses and local government to capitalize on these opportunities. According to Pittman (2007) these EUCs and communities strategize to attract businesses with an interest in their community's assets. He explains, "Smart communities figure out the types of industries and size of businesses that would be most suitable for their area and concentrate on recruiting those projects" (p. 16).

Incentives, therefore, rely on certain criteria, such as the business' orientation and/or amount of electricity usage. Georgia Power, for example, issued a sixty percent discount to chemical industries that exceeded normal base load requirements. Additionally, Philadelphia Electric Company incentivized new plants or expanding plants by offering them a twenty percent discount, contingent they add at least six new jobs. In order to attract businesses interested in energy conservation, EUCs participated in and

even initiated energy assessment programs to monitor energy usage and advised businesses on ways to cut costs. This activity of advising businesses along with offering discounted rates to incentivize them to relocate, expand, and create new jobs, initiated the significant role EUCs play in economic development today. Entergy's Teamwork Mississippi, for example, evolved from this new approach. Teamwork Mississippi even provided communities with technical assistance and up to $15,000 to construct new buildings for potential businesses. Pennsylvania Power and Light's (PP&L) involvement in economic development further exemplifies the extent to which electric utility companies participated. Ryland (2000) explains:

> Pennsylvania Power and Light created a program in which it would assist local economic development organizations in constructing and acquiring qualified speculative industrial buildings by underwriting some of the interest charges. In addition, PP&L created a partnership program with nonprofit economic development organizations, offering loans of up to $500,000 for the development of suitable land into office or industrial spaces. (p. 14)

Today, EUCs play an even larger role in economic development because of their reliable reputation and knowledge. Also, electric rates concern large businesses, such as manufactures and data centers, more than almost any other expense. Large industrial businesses, for example, pay approximately $150,000 per month for electricity. These customers contribute to a significant portion of EUC's revenue. For Mississippi Power, industrial customers account for approximately twenty-five percent of revenue. Needless to say, both large companies and EUCs benefit from working together. In addition to electric rates, companies care about electric reliability. Companies depend on electricity

powered production lines/equipment to operate. Reliable EUCs reduce risk of plant/operation failures, and therefore reduce costs for these companies.

Ryland suggests that de-regulation as a result of governmental policy changes, which occurred after the energy crisis, will decrease the extent to which electric companies participate. Based on his research, electric utility companies clearly influence local economic development. Energy availability and cost exist among the top concerns of businesses considering relocation or expansion.

Origins of Deregulation

According to Philipson (1998) "Basically, the drive for electric industry de-regulation began because governments valued the advantages of competition among energy suppliers, and wide choice for electric consumers, more than they did the continuing benefits of utility regulation" (p. 191). Additionally, Wu, Zheng, and Wen suggest "Restructuring introduces competition in the generation and, in some cases, in the retail segments of the electric power industry. The primary reason for introducing competition in the developed countries…is to improve efficiency" (Wu, Zheng, and Wen, 2005, n.d.). Both PURPA and the EPAct of 1992 opened double doors for deregulation. Electric deregulation refers to free market competition in the electric utility industry. It varies in structure from state to state, however it generally refers to open market competition within only two functions: generation and retail. However, in some cases deregulation refers to the unbundling of the electric transmission function as well. According to Wu, Zheng, and Wen, "A common element of restructuring is the unbundling of generation and transmission, with the latter being opened for use by all eligible market participants under so-called open access regime" (n.d.).

More specifically, in 1996 the FERC passed Rule 888 in support of the EPAct of 1992 and its effort to establish efficiency. This rule established open access to transmission and distribution (T&D) lines by overturning monopolistic regulations. It enforced open access to T&D lines in order to "remove impediments to competition in the wholesale bulk power marketplace" (FERC 1996, p. 1). The FERC described this decision as a "remedy for undue discrimination in access to the monopoly owned transmission wires" (FERC, 1996, p.1). Rule 888 improved the framework to permit free market competition in the United States. The choice to divert to electric deregulation, however, remains a state government decision. As revealed in Figure 4, at least 21 of 50 states have attempted to deregulate, including California, Oregon, Nevada, Arizona, New Mexico, Montana, Texas, Illinois, Michigan, Ohio, Virginia, Pennsylvania, New York, Maryland, Delaware, New Jersey, Connecticut, Maine, New Hampshire, Rhode Island, and Massachusetts (EIA.com, 2012). Oklahoma and Arkansas attempted to deregulate as well (EEI, 2010). As shown in Figure 5, deregulated states provide approximately 47% of the energy used in the nation (Robinson, 2009, p. 42). Many of them decided to suspend free competition and diverted back to a regulated environment. Others continue to operate their electric utility industry in an open market.

As later revealed, deregulation detracts from the EUCs economic development involvement, despite their relatively equal level of energy production. Many of the heavier populated states within the United States implemented electric deregulation, as opposed to rural states. This possibly explains why EUCs in deregulated states produce relatively equal amounts of energy as the more proactive EUCs in regulated states.

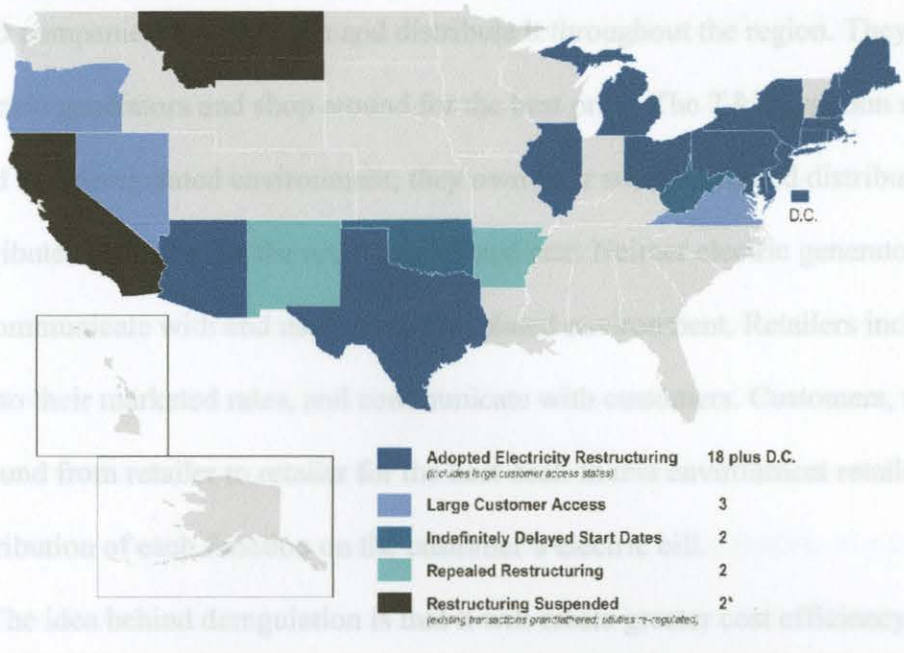

Figure 4. Status of Retail Competition (Edison Electric Institute, 2010).

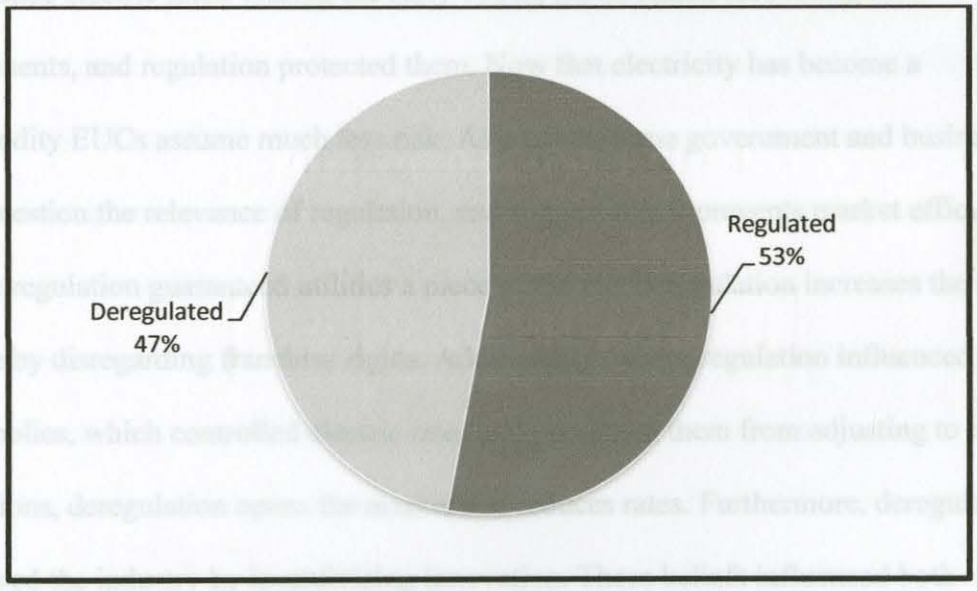

Figure 5. U. S. percentage of power from Electric Regulated v. Deregulated states (Robinson, 2009).

In a deregulated state the four functions of a utility operate as different businesses. For instance, the retail function becomes the responsibility of a privately owned electric retail company. Retailers communicate with both wholesalers who generate electricity,

and T&D companies who transmit and distribute it throughout the region. They negotiate with electric generators and shop around for the best price. The T&D function remains regulated in a deregulated environment; they own their substations and distribution lines, and distribute electricity for the retailer at a fixed rate. Neither electric generators nor T&Ds communicate with end users in a deregulated environment. Retailers include both prices into their marketed rates, and communicate with customers. Customers, therefore, shop around from retailer to retailer for the best deal. In this environment retailers specify the contribution of each function on the customer's electric bill.

The idea behind deregulation is that it will create greater cost efficiency for the EUC, increase the level of innovation, increase privatization, improve customer service, and reduce electric rates. During the early 1900s, EUCs risked recovering their investments, and regulation protected them. Now that electricity has become a commodity EUCs assume much less risk. As a result, some government and businesses now question the relevance of regulation, and suggest that it prevents market efficiency. Where regulation guaranteed utilities a piece of the pie, deregulation increases the size of the pie by disregarding franchise rights. Additionally, where regulation influenced monopolies, which controlled electric rates and prevented them from adjusting to market conditions, deregulation opens the market and reduces rates. Furthermore, deregulation improved the industry by incentivizing innovation. These beliefs influenced both government and businesses to promote deregulation in the United States.

The idea that electric deregulation would do a better job of growing the industry and benefiting the customer derived from previous experiences in other industries. Industries to deregulate before the electric industry included telecommunications,

trucking, railroad, and more. Robert Crandall and Jerry Ellig (1997), in *Economic Deregulation and Customer Choice: Lessons for the Electric Industry*, compare the results of deregulation in the gas, telecommunications, airlines, trucking, and railroad industries, and use these findings to predict the effects of deregulation in the electric industry. According to their research, deregulation significantly reduces customer pricing in each of these industries (4-15% within the first two years). Customers gain such substantial benefits for two reasons, as argued by Crandall and Ellig: One, because of competition, "deregulation aligns prices more closely with costs, leading to a more efficient use of resources by both firms and customers;" and two, "firms faced greater incentives to adopt cost-reducing or quality-enhancing innovations in technology, marketing, and business strategy" (p. 6). Supporters of deregulation explain that this process protects the customer from overcompensating for EUCs lack of cost efficiency. Crandall and Ellig (1997) claim the following economic improvements are inevitable as a result of deregulation: A reduction of regulatory costs that burden customers and taxpayers, a closer alignment of rates to utility costs, increased utility efficiency, and introduction of new services and pricing plans (p. 6). In theory, deregulation creates a better industry, but in reality, as later explained, it often complicates it.

For instance, deregulation overturns regulations implemented to reduce market inefficiency. Depending on which function deregulates, it eliminates the protective boundary of a utility's customer base. It introduces electric rate uncertainty to the industry. It also reduces revenues, available resources and funding for economic development, which suggests an inevitable decline in the community's economic vibrancy. Pittman (2007) explains "Without doubt, the loads and revenues of power

suppliers—distribution, co-ops, G&Ts, investor-owned utilities or municipalities—are closely tied to the strength of the economy in their service areas" (p. 14). Critics of deregulation question if deregulation actually improves the electric industry from any perspective, and defend that regulation best protects the customer by managing the EUC's rate of return, electricity rates, methods of production, etc. They fear deregulation will do the opposite of increasing customer benefits and industry efficiency. According to David K. Owens (2006) in *The Road to Implementation*, "The law provides the framework for enhancing our energy infrastructure by stimulating new infrastructure and technology investment, encouraging fuel diversity, enhancing grid management, strengthening reliability, promoting efficiency, and increasing protection for markets and consumers" (p. 62). Owens' view suggests that regulation improves the electric industry and reduces risks for prospective businesses, therefore, it facilitates EUCs participation in economic development. According to Philipson (1998), however, there is evidence that free market competition and customer choice leads to lower costs and improved customer value, even in states that are satisfied with their current regulated system (p. 191). His view suggests that deregulation, in fact, provides a better environment for economic development. The following research will help to determine if electric deregulation actually leads to the first or second suggestion.

Attempts to Deregulate

England and Wales

One of the first countries to implement deregulation, and perhaps one of the best examples of deregulation is England and Wales. England and Wales officially deregulated its electric industry in 1988. At this point only generators entered into

competition, however electric retail deregulation soon followed. The process began by privatizing the country's twelve electricity boards into distribution companies referred to as Regional Electricity Companies (RECs) in December of 1990 and in March of 1991, by dividing the power stations owned by the Central Electricity Generating Board (CEGB) into two private competing generating companies: National Power and Power Gen (Philipson, 1998, p. 319). Aside from the two primary generating companies, a government owned generator, Nuclear Electric, and the National Grid Company (NGC- the independent transmission system operator in the new structure) resulted from the split up of the Central Electricity Generating Board. Government strategically planned for two private generating plants and one government owned nuclear plant to operate simultaneously to increase reliability and efficiency. Wu, Zheng, and Wen (2005) explain, "In the electricity market of England and Wales, the revenue cap regulation is imposed on the transmission owners, with the cap set by the rate of inflation adjusted with a factor representing technological progress, and a portion of the difference between the actual congestion cost and a target payment to the customers" (n.d.). The NGC managed the most crucial and centralized point of the country's new deregulated structure: the "mandatory pool" (Philipson, 1998, p. 319). The NGC required RECs to submit bids and load forecasts one day ahead of time in order to determine the market clearing price paid to all bidders. RECs then purchased all electricity from the pool.

Some inefficiencies with the pool influenced government to revise this structure and establish a new system, the New Electricity Trading Arrangements (NETA), a few years later. These inefficiencies included the pool's inability to change its rules. Griffin and Puller (2009) explained:

> The regulator had become frustrated with the pool's inability to change its rules—a governance system designed to protect minority interest against changes being imposed by larger companies had allowed opponents of potentially beneficial reforms to drag out the change process for months or years. (p. 127)

In addition to this, for the first year special contracts supported by Nuclear Energy, the government owned nuclear plant, prevented an increase in anyone's bill that year; however, the following year, after these contracts expired, some customers' prices rose, insinuating the non-sustainability of the pool (Griffin & Puller, 2009, p. 101).

Nonetheless, England and Wales benefited from electric deregulation. Philipson (1998) explains generation plant-employment decreased by 60%, and productivity increased by 75% as a result of deregulation (Philipson, 1998, p. 321). Large electric users benefited most as a result of retail deregulation. According to Griffin and Puller (2009) these customers quickly learned to shop around, and every customer, large and small, who decided to shop around paid 10% less than non-switchers (Griffin & Puller, 2009, p. 99). Additionally, RECs began to merge together after government decided to repeal certain regulations that limited vertical integration (Griffin & Puller, 2009, p.117). According to Griffin and Puller (2009), since almost the beginning of electric restructuring in England and Wales in 1988, most customers have seen reductions of more than 30% (Griffin & Puller, 2009, p. 132). Therefore, the introduction of electric competition leads to cost savings and other benefits if implemented correctly. "Proactive regulation may offset the impact of an uncompetitive market structure or poorly designed rules, but regulatory intervention is almost always a poor second best to a competitive market structure and well designed rules" (Griffin & Puller, 2009, p. 138).

England and Wales' approach to electric deregulation serves as a good example for others to follow, however, their success evolved over time. It took them at least a decade to adequately implement competition into their electric generation system. Any attempt toward electric deregulation should begin with a well thought out plan and significant dedication to electric deregulation success.

California

Consider the first attempt toward electric deregulation in the United States: California. Under Governor Arnold Schwarzenegger, California implemented electric deregulation in 1998; however, provisions for electric deregulation existed in the United States as early as 1992 with the passing of the EPAct 1992. California, however, took the greatest initiative to take advantage of this opportunity. For the first few years, because of existing contracts, electric deregulation in California worked well. However, in the early 2000s the California electricity crisis occurred. Though California, the first state to deregulate the electric industry (generation), California's attempt toward deregulation disregarded many of the state's existing circumstances in the electric industry. For instance, existing policies in 1999-2000 established by the FERC, in addition to the unique supply structure of the state's electricity during this time, prevented the increase in electric reliability and the decrease in electricity prices as predicted by the theory of electric deregulation. More specifically, decision makers in California recognized prior to deregulation, the ability of established electric suppliers to exhibit market power. A supplier with market power possess the potential to influence electricity price increases, and the FERC in 1935 intended to prevent this from occurring. However, during 1999-2000 the FERC, in an attempt to promote wholesale electricity markets, allowed the

willingness of all electric generators to supply electricity into a wholesale market, to influence the price of generation instead of the earlier established criteria (Griffin & Puller, 2009, p. 151). This policy permitted electric suppliers to charge unreasonable price for electricity. Eventually, the FERC disputed and corrected them. Stated differently, according to Griffin and Puller (2009):

> Once a supplier has received market-based price authority it is free to maximize profits, which is equivalent to exercising all available unilateral market power, because the FERC's market-based price process has determined that the firm has no ability to exercise unilateral market power…it is not illegal for a firm to receive a market price that reflects the exercise of significant market power, but it is illegal for a consumer to pay this unjust and unreasonable price. (p. 151)

This logical impossibility in policy, in addition to electric generation and transmission circumstances in California, contributed to the state's early failures in electric deregulation.

California outsources a significant amount of its electricity needs. According to Griffin and Puller (2009) this amount represents 20 to 25%, and these imports come mainly from the Pacific Northwest in the form of hydroelectricity. This reliance on out-of-state resources influenced California's electricity crisis in 2000. During the summer of 2000 high-demand conditions for energy in the Pacific Northwest left fewer of these resources available to import into California. Additionally, with the limited supply of accessible water for hydroelectric generation plants, these plants only generate as much power as the available water resource allows, regardless of the significant increase in the level of demand. Lastly, though in some cases electric generators in the state possess the

capacity to produce more energy in quick response to the event of an energy supply shortage, contracts often prevent this recovery. Griffin and Puller (2009) explain:

> The production of electricity is characterized by binding capacity constraints because a generation unit with a nameplate capacity of 500 megawatts can produce only slightly more than 500 megawatt hours of energy in a single hour. These capacity constraints limit the magnitude of the short-run supply response of each firm to the attempts of its competitors to raise market prices. (p. 148)

According to an article by Jude Clemente (2011), environmental regulations in California discouraged adequate investment in generation capacity by electric suppliers and therefore influenced the significant reliance on outsourcing. As referenced in the article "California had maintained one of the strictest sets of environmental regulations and opposition to industrial sites and in particular power plants could be significant at the local level. This discouraged investment in new capacity" (Clemente, 2001, p. 1).

The shortage in energy supply from the Pacific Northwest in 2000 caused two days of consistent electrical power outages within the state, because California lacked a sufficient level of readily available resources and relied heavily on hydroelectric generation. Additionally, congested transmission lines also prevented electricity generators from servicing customers in certain regions, hindering perfect market competition. Transmission line congestion occurs when electric generators transmit too much power across the same lines at the same time in response to market opportunities. Some electric generators are therefore unable to service that particular region, and as a result permit electric suppliers in that region to exhibit market power.

California's attempt to electric deregulation serves as a negative example of how other states should pursue electric deregulation. According to Rudnick and Zolezzie (2001) in their article *Electric Sector deregulation and restructuring in Latin America: Lessons to be learnt and possible ways forward* ,"It is not easy to develop mechanisms to ensure free entry to the generation market, avoiding market power or cartel agreements, as experience elsewhere demonstrates" (p. 182). Other sources emphasize the importance of implementing supportive policies prior to deregulation that facilitate it. These advisors argue that implementing new policies post electric deregulation almost always detracts from that state's deregulation success. Many states suspended free market competition in order to avoid a similar California catastrophe. Also, some states that currently operate under electric deregulation have not experienced increases in electric reliability and decreases in electric rates as predicted. In fact, electricity prices for most small businesses and residential consumers in these states increased as a result of electric deregulation. Larger customers, however, did experience price decreases, and some EUCs experienced a reduction in costs. As a result of electric deregulation in California, EUCs operated with less available funding for economic development. Their economic development efforts decreased. Additionally, increased rates and uncertainty in California hindered economic development. Timothy Considine and Andrew Kleit (2002) explain, "The Failure in California clearly hinders future development and, in fact, may force firms to relocate to areas with lower cost and more reliable electricity" (p. 92). Three electric utilities in California provide seventy-five percent of the state's electricity: Southern California Edison, San Diego Gas and Electric, and Pacific Gas and Electric. During the first stages of electric deregulation these utilities operated under price caps, (i.e., price ceilings), and

because customers understood this limitation to their electric bill, deregulation failed to improve energy efficiency in California. Although these customers knew of the price caps they did not understand the state's desperation for energy conservation. This effect of deregulation in California contradicts the theory of deregulation which suggests increased energy efficiency. Improvements did occur in Texas, however, as a result of increased investments in infrastructure within the state.

Texas

Deregulation in Texas began in July of 2001 under Governor George Bush. Arguably, Texas' swing at deregulation has out done all other states' attempts. In 1999 the Texas legislature passed Senate Bill 7 (SB7), which required the Electric Reliability Council of Texas (ERCOT) to facilitate free market competition by developing a market structure, infrastructure, and business process (Griffin & Puller, 2009, p. 184). Unlike in California and England and Wales, these legislatures developed protocols for retailers to abide by instead of a designed retail market. Retailers competed as they wished within those rules. The SB7 unbundled IOUs and required each electric industry function to operate separately as a distinct company. The new market structure consisted of privately owned retail companies and privately owned electric producers. Both of these groups competed in an open market. T&D companies remained regulated.

Electric deregulation seemingly worked better in Texas than in California and other states because the EROCT permitted these unbundled companies to remain affiliated. For example, one retailer and generator might belong to the same parent company, but operate as different businesses. According to Griffin and Puller (2009) this "produced implicit vesting contracts between generators and retailers" (p. 188). The term,

vesting contract, refers to a bilateral contract between generators and retailers, where generators agree to sell a specified amount of electricity at a specified price, for a specified time period. These contracts curbed market power and removed incentives for generators to withhold their generation capacity to increase prices (EMA, 2012). The lack of similar contracts in California influenced generator market power and increasingly excessive wholesale prices.

The fact that the EROCT served approximately 85% of Texas' electric load also benefited electric deregulation. The EROCT only serviced customers within the state of Texas, and conducted business solely within the state. Therefore, the FERC remained uninvolved in the deregulatory process. In retrospect, the FERC's involvement in California's deregulatory process further complicated it.

As a result of electric deregulation, generation capacity increased by about 30 % in Texas due to increased infrastructure investments. According to Griffin and Puller (2009), approximately 18,000 MW was added, increasing the capacity from 59,000 MW to 77,000 MW (p. 186). More investments in substations and distribution lines occurred, and reliability increased as well. Some customers did, however, experience rate increases because more players entered the market (i.e., power service marketers) who contributed additional expenses to the customer's bill. Additionally, some EUCs did lose revenue. However, costs declined as well.

Utilities downsized their economic development efforts in Texas as well primarily because these utilities operated with less revenue. In deregulation, these utilities provided power through the power service marketer instead of directly. Therefore, they communicated with the end users less and offered fewer incentives for new business

development. They did, however, increase energy efficiency and cost efficiency awareness efforts.

Deregulated EUC in Economic Development

The following critics make suggestions about how electric deregulation will affect the role EUCs play in economic development. Ryland (2000) suggests it will force them to "become more creative with marketing and incentive programs" (p. 41). A consensus of researchers agrees that deregulation will influence innovation and therefore improve the market and the economy. Little of the literature explains, however, the actual role of electric utilities in economic development within a deregulated environment. Considering the needs for EUCs to recover stranded costs, increase their marketing efforts, pay closer attention to competitors, and maintain customers within deregulation, they may devote fewer resources to recruiting businesses, building on existing business relationships and investing in the community. Robinson (2009) explains, states, municipalities, and electric utilities all possess at least one motivator for participation in economic development: incentives, or as he puts it an "electric economic development rider" (p. 42). Electric economic development riders entice and assist companies with new business development. Policy makers first determine the uniqueness of that company by assessing its ability to create jobs, invest into the community, utilize substantial amounts of power, etc. EUCs then attract these unique businesses by providing economic development riders. These incentives work well for the utility because they increase the company's competitiveness, but also help to establish long term customers by locking in customers through contracts. States benefit from incentives as well, and deregulated states should use this capability to entice electric utilities to re-engage in economic development. In

fact, "If properly implemented from a regulatory standpoint and effectively promoted by utilities, these programs could be an important tool for retaining and attracting manufacturers and building research parks and downtown office towers" (Robinson, 2009, p. 46). If deregulation negatively influences EUCs from participating in economic development, as later determined, they along with their state legislature should strategize to improve it. The significant involvement of electric utilities in economic development contributes to the utility's bottom line and influences economic vibrancy in the state and the county, therefore, the possibility that electric deregulation detracts from this involvement deserves a closer look. Robinson uses the following figure to illustrate the basis for traditional economic development riders.

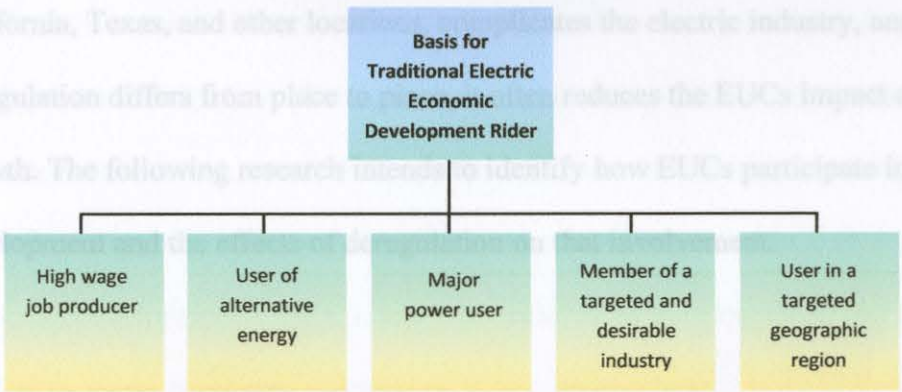

Figure 6. Basis for traditional economic development rider (Robinson, 2009).

Literature Review Summary

In summary, since the establishment of the electric utility industry in the late 1800s, EUCs significantly contributed to economic growth. The industry's growth depended on three mutual aspects: electric usage, electric technology, and electric business. Society developed an understanding of electricity and its applications in the early 1900s. Additionally, inventors created new innovations and utilities provided

business services. Growth in these aspects produced today's significantly influential electric industry.

As explained, industry growth influenced regulation. Regulation intended to benefit consumers, the environment, and electric utilities by managing electric rates, fuel usage, electric competition, etc. As a result, EUCs operated under vertical integration, meaning one utility participated in all four functions of the industry. Regulation, therefore, increased reliability and decreased risks and electric rates. EUCs however, occasionally protested these regulations. Legislation such as PURPA and the EPAct of 1992 intended to solve to both customer and utility issues, however, these acts opened double doors for electric deregulation. Deregulation, as seen in England and Wales, California, Texas, and other locations, complicates the electric industry, and although deregulation differs from place to place, it often reduces the EUCs impact on economic growth. The following research intends to identify how EUCs participate in economic development and the effects of deregulation on that involvement.

CHAPTER III

METHODOLOGY

This research sought to determine how electric utilities participate in economic development, and how might the trend of electric deregulation affect that relationship. The researcher first reviewed the academic literature previously discussed in the literature review to determine if EUCs participate in economic development. As a result, the researcher determined that electric utilities significantly participate in economic development and serve as primary catalysts for economic growth in the community. Therefore, the next phase of research consisted of developing an open ended interview to assess the effect of deregulation on the role of electric utilities in economic development. In order to test that EUCs within a deregulated environment participate less in economic development than EUCs within a regulated environment, this interview research phase began with a look into how EUCs participate in economic development within regulated states. Subsequently, it analyzes EUCs in deregulated states and how they participate in economic development. Lastly, it analyzes websites of both regulated and deregulated utilities to assess consistent differences, if any, among them.

Description of Test Groups

The first part of this research consisted of a qualitative assessment of how EUCs participate in economic development within a regulated environment. The assessment included an interview of ten open ended questions. These questions intended to stimulate insightful discussion concerning how utilities participate in economic development and why. The researcher intended to accurately analyze each EUC's role, and then compare

them to identify trends. The interview questions, as shown in Figure 7, intended to eliminate any level of biasness.

Role of EUC in economic development within a regulated and deregulated environment
Interview Questions

Company Name_____ Person Interviewed_____

For the requirement for the Degree of Masters of Economic Development, I plan to conduct research concerning the role of electric utility companies (EUC) in Economic Development within a deregulated environment, and write a Master thesis. The hypothesis for this research will be: Deregulation changes the way electric utilities participate in economic development and negatively impacts the local economic development process. I will conduct research of the role of EUCs in economic development in both regulated and deregulated states, and collect data in an effort to prove the aforementioned hypothesis.

Please answer the following questions concerning your role as an electric utility in economic development.

1) Why do you participate in economic development?
2) Who do you target?
3) What attraction activities do you perform and what do you hope to achieve for your power company by doing these activities?
4) What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?
5) What community development/small business development activities do you perform what do you hope to achieve for your power company by doing these activities?
6) How do you benefit from participating in economic development?
7) Why is your involvement in economic development so important to local/regional economic growth?
8) How do you feel about regulation?
9) What, if any, are the benefits of electric deregulation?
10) How would electric deregulation affect your involvement in economic development?

Figure 7. Research Instrument- Interview Questions.

This initial phase consisted of phone interviews of the following five EUCs: Entergy Mississippi, Mississippi Power (A Southern Company), Tennessee Valley Authority (TVA), the Electric Power Association of Mississippi (EPA of MS), and Entergy Arkansas. Entergy Mississippi (Entergy MS) serves 45 of 80 counties in western

Mississippi. It sells power to 437,000 end users in Mississippi: 366,697 residential, 62,762 commercial, 4,358 Governmental, and 3,488 industrial (entergy-mississippi.com). Mississippi Power directly serves at retail, most of the cities, towns, and communities within the 23 counties of southeast Mississippi. It also serves six REA-financed electric cooperatives and one municipality: City of Collins. Its customer base equals 186, 679 customers: 152,792 residential, 33,237 commercial, 474 industrial and 176 other (mississippipower.com). TVA provides power to an area over 80,000 square miles in the southeastern United States. This area includes almost all of Tennessee and parts of Mississippi, Kentucky, Alabama, Georgia, North Carolina, and Virginia. TVA sells to over 155 local power distributors, who then distribute it to the end user, (tva.com).The EPA of MS consists of 26 cooperatives in Mississippi. Twenty-five of these cooperatives deliver electricity to more than 754,000 meters (more than 650,000 residential meters), and one of these cooperatives, a generation and transmission utility, distributes wholesale power to 11electric power associations (epaofms.com). Lastly, Entergy Arkansas serves approximately 693,000 customers in 63 counties in Arkansas: 582,813 residential, 88,895 commercial, 20,402 industrial and 693 governmental. The researcher contacted each subject by phone, asked each subject the same questions, and manually transcribed each answer. Table 2 summarizes each of these EUCs.

Table 2

Electric Utility Interview Subjects from Regulated States.

Electric Utility	Function	Description
Entergy Mississippi	Privately owned subsidiary	437,000 customers in 45 of 80 counties in Western Mississippi
Mississippi Power	Privately owned subsidiary	186,679 customers in 23 counties in Southeast Mississippi
TVA	Cooperative (wholesaler)	155 local power distributors in Southeast United States
EPA of MS	Group of Cooperatives	754,000 customers in Mississippi
Entergy Arkansas	Privately owned subsidiary	693,000 customers in 63 counties in Arkansas

Each of these initial five subjects represented utilities participating in economic development within a regulated environment. Either the Utility Director or Director of Economic Development for each company participated in the interview. This group well served the purpose of identifying the role electric utilities play in economic development within a regulated environment because of their willingness to share, in detail, their role in economic development. Each interview continued for approximately 30 to 45 minutes, and all subjects received the same questions. This group derived from a snowball approach, meaning the prior representative introduced the subsequent representative, which continued throughout the second group of deregulated EUCs as well. The second round of research proceeded.

The second research phase, like the first, consisted of qualitative research by way of phone interviews. The researcher interviewed the following five EUCs: Duke Energy, Ohio; Oncor, Dallas, TX; Center Point Energy, Houston, TX; American Electric Power (AEP Ohio), and First Energy, Ohio. Duke Energy is the largest electric power holding company in the United States. It services 7,000,000 electric customers and 500,000 gas customers across the southeast and Midwest United States. From Indiana to Florida, Duke Energy's service territory covers approximately 104,000 square miles (duke-energy.com). Oncor operates the largest T&D system in Texas, delivering power to more than three million homes and businesses and operating approximately 118,000 miles of transmission and distribution lines. It provides services to 401 cities across ninety-one counties in the state (oncor.com). Center Point Energy operates in five primary businesses: electric transmission and distribution, natural gas distribution, interstate natural gas pipelines, field services, and competitive natural gas sales and service. Its

electric T&D unit serves more than 2.1 million customers in a 5,000 square-mile area that includes Houston, TX. With over 3,700 miles of transmission lines and 47,000 miles of distribution lines, Center Point Energy delivers electricity on behalf of 79 retail electric providers, (centerpointenergy.com). AEP Ohio is a subsidiary of American Electric Power and the largest of its regional utility divisions. It is comprised of Columbus Southern Power Company, Ohio Power Company and Wheeling Power. AEP Ohio serves nearly 1.5 million customers in Ohio and the northern panhandle of West Virginia. It provides power to more than 920 communities located in 61of the state's 88 counties, (aepohio.com).Lastly, First Energy, Ohio includes one of the nation's largest investor-owned electric systems, made up of ten distribution companies. It operates in six states, and services approximately six million customers over 65,000 square miles (firstenergycorp.com). Table 3 summarizes the second research group.

Table 3

Electric Utility Interview Subjects from Deregulated States

Electric Utility	Function	Description
Duke Energy, Ohio	Privately owned subsidiary	Duke (holding company) services 7,000,000 customers
Oncor, Texas	Privately owned subsidiary	3,000,000 customers in 401 cities across Texas
Center Point, Texas	Privately owned T&D	over 2,000,000 customers across Texas, including Houston
AEP Ohio	Privately owned subsidiary	over 1,000,000 customers across Ohio and Northern WV
First Energy, Ohio	Privately owned subsidiary	First Energy (holding company) services 6,000,000 customers

Contrasting with the first group, each of these five subjects represented utilities participating in economic development within a deregulated environment. Either the Utility Director or Director of Economic Development for each company participated in the interview. This second research group answered the same questions as group one, and as in group one, each interview lasted approximately 30-45 minutes. The researcher

contacted each subject by phone, asked each subject the same questions, and manually recorded each answer. This group well served the purpose of identifying the role electric utilities play in economic development within a deregulated environment because of their unique, wide spread territories, and their significant experience with operating in a deregulated environment. After conducting the second round of interviews the researcher compiled the answers from both rounds into one chart and identified the similarities and differences.

The third phase of research consisted of conducting a website analysis of twenty EUCs: ten from regulated states and ten from deregulated states. These EUCs consisted of CLECO, Louisiana; Georgia Power; Madison Gas and Electric, Wisconsin; Minnesota Power; Green Mountain Power, Vermont; Indianapolis Power & Light, Indiana; TECO, Florida; Mississippi Power; Duke Energy, North Carolina; Kansas City Power & Light; Baltimore Gas & Electric, Maryland; Ohio Edison; Dayton Power & Light, Ohio; El Paso Electric Company, Texas; UI, The Illuminating Company, Connecticut; Banger Hydro, Maine; Con Edison, New York; Empire, Missouri; Duquesne Light, Pennsylvania; and Central Hudson Gas & Electric, New York. Refer to Table 4 for a list of these EUCs. This group derived from utilityconnect.com. Each EUC represents an IOU with approximately 100,000 to 600,000 customers, located in the south central region of the United States. The researcher chose these EUCs based on their customer size and geographic location.

This research began by identifying three primary areas of interest: business attraction, business retention and expansion, and community development. Next the researcher gathered criteria to measure these three components by researching related text

books: IEDC's *Business Retention and Expansion, Introduction to Economic Development*, and *Economic Development Marketing and Attraction*; and Blakely and Leigh's *Planning Local Economic Development*. From these books an inclusive list of activities for each area of interest was developed. Subsequently, the researcher began analyzing each website based on the developed list of criteria. The researcher used seventeen criteria to measure business attraction, and compared the average number of criteria that EUCs in regulated states met to the average number that EUCs in deregulated states met. Next, the researcher measured BR & E by twelve criteria and made the exact comparison. She then measured community development by seven criteria and added two criteria: grants and innovation, under miscellaneous. After which, the researcher compared each group's community development involvement. The researcher calculated the average number of activities participated in by EUCs from regulated states, and then the average number of activities participated in by EUCs from deregulated states. The researcher weighed the EUCs participation in economic development by these averages. Subsequently, this data was analyzed to identify the strengths and weaknesses of EUCs from both regulated and deregulated states. Finally, the researcher compiled the findings into six tables. The first table reveals the overall result of the website analysis. It displays the calculated averages for comparison. The second table reveals the results of the business attraction analysis. The third table reveals the results of the BR&E analysis; and the fourth reveals the results of the community development analysis. These three tables provide the total number of EUCs that met the specified criteria. The fifth and sixth table specifies the criteria met by each individual EUC, and compares EUCs from regulated and deregulated states. The researcher developed a graph for tables one through four to

illustrate the website analysis results. The results present clear distinctions between EUCs in regulated states and EUCs in deregulated states concerning their role in economic development.

Table 4

Website analysis- list of EUC websites surveyed

EUCs from Regulated states	EUCs from Deregulated states
CLECO, Louisiana	Baltimore Gas & Electric, Maryland
Georgia Power;	Ohio Edison
Madison Gas and Electric, Wisconsin	Dayton Power & Light, Ohio
Minnesota Power	El Paso Electric Company, Texas
Green Mountain Power, Vermont	UI, The Illuminating Company, Connecticut
Indianapolis Power & Light, Indiana	Banger Hydro, Maine
TECO, Florida	Con Edison, New York
Mississippi Power	Empire, Missouri
Duke Energy, North Carolina	Duquesne Light, Pennsylvania
Kansas City Power & Light	Central Hudson Gas & Electric, New York

Note. Each EUC operates as an IOU with approximately 100,000 to 600,000 customers.

Strengths and Weaknesses of Research

The sample group expressed significant knowledge about regulation and/or deregulation, and the electric industry. This group well represented electric utilities and the differences between EUCs in regulated and deregulated states. Each representative engaged well with the researcher and provided insight concerning his company and how it participates in ED. This group delighted in sharing with the researcher and responded passionately to the researcher's request for information. Additionally, this sample group included utility directors from some of the largest and most influential utility companies in the nation. These strengths of the sample group contributed to the depth and accuracy of the research results.

Other strengths include the accuracy of the research instrument, as shown in Figure 8, to test the hypothesis. Each interview question and website criteria developed

from academic literature, suggesting the creditability of these research instruments to measure the role of EUCs in economic development accurately.

Evaluation Criteria	Questions
1. Business Attraction *(the activities, as revealed on the website, that the utility performs to attract prospective businesses)*	____ Does the website provide tax/non tax incentive information? ____ Does the website provide site and building information? ____ Does the website provide information about services and procedures? ____ Does the website provide permitting/licensing information? ____ Does the website provide workforce training/ development information? ____ Does the website provide demographic information? ____ Does the website provide GIS capability? ____ Does the website provide press release/media coverage? ____ Does the website provide trade show schedules/ information? ____ Does the website reach out to business that left the community? ____ Does the website provide a description of the community/ present the community image? ____ Does the website provide accurate, up-to-date, credible information? ____ Does the website provide contact information? ____ Does the website provide a specific site selector tab? ____ Does the website provide a specific economic development tab? ____ Map of service territory? ____ List of community resources? **Miscellaneous**
2. Business Retention/ Expansion *(the activities, as revealed on the website, that the utility performs to influence BRE)*	____ Does the website provide technical assistance? ____ Does the website provide information on business assistance programs? ____ Does the website provide trade promotion/ export assistance information? ____ Does the website provide energy cost reduction information? ____ Does the website provide energy audit information? ____ Does the website provide permitting/licensing information? ____ Does the website provide workforce training/ development information? ____ Does the website provide tax/non tax incentive information? ____ Does the website provide financial assistance information? ____ Does the website provide technical resource information? ____ Does the website provide a customer survey? ____ Does the website provide information about area regulations? **Miscellaneous**
3. Community Development *(the public services activities performed by the utility, as revealed on the website)*	____ Does the website provide workforce training/ development information? ____ Does the website provide low income-community development information? ____ Does the website promote health, education, and nutrition in the local community? ____ Does the website target & market neighborhood/ community assets? ____ Does the website provide an intermediate sector to create jobs in the local economy? ____ Does the website promote local ownership? ____ Does the website provide technical assistance? **Miscellaneous** ____ Does the website discuss innovations? ____ Does the website provide community grant information?

Figure 8. Website analysis-research instrument.

In contrast, the limited sample group excludes the role of many additional electric utilities throughout the nation in economic development. A consensus of all electric utilities may or may not parallel with the results of this research. Additionally, the website analysis disregards the extent to which EUCs meet the necessary criteria. In fact, some EUCs provided greater detailed information than others; however, the website analysis instrument, as shown in Figure 8, disregards this extent.

CHAPTER IV

RESULTS

Analysis of Interviews

Question One

After comparing the two groups of interviews the researcher found differences between the economic development role of EUCs in regulated states and deregulated states. More specifically, the first interview question asked, "Why do you participate in economic development?" This question sought to determine if deregulation changes the motive of EUCs to participate in economic development. The researcher found some distinctions between the two groups, as illustrated in Table 5. Both regulated and deregulated EUCs historically participated in economic development since their inception. Utility representatives referred to the railroads and compared how they both came to serve unofficially as the nation's first economic development organizations (EDO). According to one EUC representative, "Historically, utilities along with railroads were the first economic developers."

This history of the railroad as an EDO derived from its early need for more businesses and people to exist and live nearby the railroad tracks in order to continue development and increase profits. EUCs began to participate in economic development for similar reasons. According to EUCs from both groups, by participating in economic development EUCs increase their customer base which lowers cost, increases profits, and sustains the utility.

Based on the interview answers from EUCs in regulated states, they participate in economic development in order to increase their customer base and sales. EUCs in

regulated states, because of their defined territories, only benefit from electric sales made within their service territory, and economic development increases the customer base and amount of electricity usage within that boundary. EUCs in deregulated states rely on economic development to increase their customer base as well, because, as confirmed by representatives from EUCs in deregulated states, most T&D utilities in deregulated states remain regulated. Both groups mentioned their responsibility to the community and referred to their participation in economic development as the right thing to do, but EUCs in deregulated states, more so than representatives from regulated states, expressed their concern with return on investment (ROI). As it seems, EUCs in deregulated states participate in economic development from slightly more of a business perspective, i.e., to ensure the recovery of their infrastructure investments. The researcher will further examine this claim in the next research phase. Deregulation decreases the certainty of always knowing the sales capacity for the EUC. Additionally, in deregulation, EUCs find it more difficult to recover from excess generation capacity and intend to regain new load to compensate for it. As a result, EUCs in deregulated states participate in economic development to reduce risks and increase the likely hood of an adequate ROI. One representative from a regulated state explains, "In regulation, it's the only way to grow our business. We can only serve customers in our service territory."

Table 5

Question 1 Results: Why EUCs Participate in Economic Development

Questions	Regulated EUC	Deregulated EUC
Why do you participate in economic development?	Participating in new business development/expansion is the only way to increase our sales/ grow our business/customer base. To help the local community. It's apart of our history. We're mandated by Government to do so. Good corporate citizenship.	Historically participated in ED- since the railroads began participating in ED. Generation and retail are the only deregulated functions Transmission and Distribution (T&D) functions remain regulated in most states. T&D EUCs still depend on gov. regulation and benefit from participating in ED We need capacity to be strong Utilities can not relocate We can't grow our service territory w/o it. Because of excess generation capacity (we want to regain new load to utilize excess electricity) More customers provide a better ROI Ice houses needed electricity Because it's the right thing to do To increase sales Its the only way to grow our business

Question Two

Question two of the interview asked, "Who do you target?" and sought to determine if EUCs in deregulated states focus their economic development efforts toward a different target market, and why. The researcher found that EUCs from both regulated and deregulated states channel their economic development efforts toward high load customers such as large manufacturers, large industrial customers, data centers/call centers, office headquarters, and more. More specifically, EUCs prefer to attract "primary" businesses, those that export their goods/services outside of the community. EUCs understand that although "secondary" businesses, such as retail shops, improve the quality of life; rather than increase profits and invest more money into the community,

they simply redistribute it from one community business to another. Primary businesses, on the other hand, invest money into the community.

Though EUCs in both regulated and deregulated states target the same type of customers, their attraction methods differ. The researcher found that EUCs in deregulated states generally provide infrastructure and community development assistance to attract these businesses instead of funding. According to one representative from a deregulated state, "We do not have funding for these projects. Our contribution is providing infrastructure."

Table 6 exemplifies the methods of EUCs from both regulated and deregulated states, and the following interview questions provide greater insight into how their methods contrast.

Table 6

Question Results: Who EUCs Target

Questions	Regulated EUC	Deregulated EUC
Who do you target?	Site Location Consultants Existing Industry Federal Delegation Investor Owned Utilities Multipliers (e.g. Industrial, large commercial) Community/Workforce development Advanced manufacturing Wood products Food processing Call centers	Complimentary targets High load factory customers (e.g. manufacturers, data centers, chemical processing, automotive) Distribution centers Office headquarters NO retail Primary jobs (those that export their services; not retail) * We don't actually provide funding, just infrastructure

Question Three

Question three asked, "What attraction activities do you perform and what do you hope to achieve for your power company by doing these activities?" This question intended to uncover if deregulated EUCs participate as much in business attraction as regulated EUCs, and how. The researcher found that deregulated EUCs are significantly

less proactive in business attraction than regulated EUCs as illustrated in Table 7. According to representatives from EUCs in deregulated states, they generally invest in the community and its ability to attract and accommodate large businesses. In contrast, regulated EUCs pursue businesses by conducting industry analysis and by making the initial call in order to spark interests and create demand. Both groups partner with EDOs, however, EUCs from deregulated states referred to their regional partnerships more commonly than local partnerships. In contrast, EUCs from regulated states referred more commonly to local partnerships. For instance, representatives of EUCs in deregulated states referred more to their regional EDO than the local EDO. They expressed a greater interest in regional participation. Both groups attract site location consultants, utilize their websites, and participate in site development. Although, EUCs from deregulated states discuss site readiness more than representatives from regulated states.

In general, EUCs from deregulated states participate in business attraction differently than EUCs from regulated states. EUCs in deregulated states generally become less proactive (e.g., uncovering leads, offering loaded incentives) in business attraction, and more reactive to presented opportunities. They downsize their economic development department and rely more heavily on the business or regional EDO to present them with opportunities. By participating in business attraction EUCs from both groups hope to increase their bottom line. Additionally, they hope to increase the community's competitiveness in order to attract further investment and jobs. According to one representative from a deregulated state:

"We are less proactive because of the economy. We utilize the website to attract business. We don't do as much advertising, trade shows, etc. anymore. Other conditions,

such as workforce, logistics, etc., drive businesses to the area. We're selling our community not our company."

A second EUC representative from a deregulated state confirmed this situation. He explains, "We work through these organizations to leverage opportunities. It's like we're part of their staff."

Table 7

Question 3: Attraction Activities

Questions	Regulated EUC	Deregulated EUC
What attraction activities do you perform and what do you hope to achieve for your power company by doing these activities?	Invite/host Site Consultants (Team MS) Geographic recruiting (calling on companies) Executive Tours (call on business that relate to our territory assets) Industry analysis (identify common industries and call on these type businesses) Work with local EDO (i.e. MDA) Advertising/Website	*More reactive to opportunities than proactive to uncover leads We work with regional EDO We provide strategic ED planning We attend trade shows and invite EDOs Help with community site visits Perform a target analysis Work with suppliers about efficiencies in their supply chain Market so site location consultants Website *We don't do as much advertising; we're selling community not our company Provide financial support, training, resources Hire consultants to come and identify potential sites

Question Four

Likewise, question four of the interview sought to uncover if EUCs in deregulated states participate as much in business retention and expansion as EUCs in regulated states, and how. It asked, "What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?" From this question the researcher gathered that EUCs in both regulated and deregulated states participate less in business retention and expansion (BR&E) than business attraction. Refer to Table 8. Furthermore, deregulation barely affects how EUCs participate in

BR&E. Both groups explained their collaboration with community EDOs, their technical support for existing businesses, and their push for energy efficiency as BR&E activities. Additionally, according to both groups, they depend on account representatives to build relationships with existing businesses, respond to business concerns, and identify opportunities. These account representatives communicate their findings back to the EDO. Deregulated states sometimes use national account representatives instead of the utility's local account manager.

Table 8

Question 4: Retention/Expansion Activities

Questions	Regulated EUC	Deregulated EUC
What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?	We utilize Account Managers to build relationship and provide technical assistance to businesses. Provide energy cost saving incentives Encourage community BRE programs Conduct an annual assessment	*Utility does not participate in BR&E National Account Rep works with existing customer We contact regional EDO to respond to existing business concerns * We concentrate on retention and expansion (80% of our projects come from existing business) Syncronist license (to strategize /organize BR&E) Staff makes calls Export Now (work to develop small businesses into exporting companies) We work with the community We provide technical assistance and services just like we do with BS Attraction We support financially We measure multiplier effects We hope to increase our revenue We hope to impact jobs

Responses to question four varied within the group of deregulated EUCs, and occasionally contradicted each other. For instance, one EUC representative explained the utility's lack of participation in BR & E: "We do not do retention and expansion. We provide funding to the regional EDO for retention and expansion projects."

Only three others from deregulated states confirmed their participation in BR&E. One emphasized the significance of the utility's BR&E activities: "We concentrate more on BRE activities. Eighty percent of our projects come from existing businesses."

Two other representatives explained that EUCs in deregulated states communicate BR&E concerns to the EDO, which holds the responsibility of following up. Nevertheless, for both groups, EUCs that participate in BR&E hope to retain businesses and impact growth. They understand that BR&E creates just as much growth as new businesses, have higher closing rates, and generally require less funding.

Question Five

Subsequently, question five asked EUCs, "What community development/small business development activities do you perform, and what do you hope to achieve for your power company by performing these activities?" This question sought to determine if EUCs in deregulated states participate in community development/small business development differently than EUCs in regulated states. The researcher found that EUCs in deregulated states participate in community development/small business development similarly to EUCs in regulated states. This question revealed that EUCs in deregulated states facilitate strategic planning, provide funding to communities, work through EDOs, etc., just as EUCs in regulated states. However, these EUCs commonly separated community development from economic development. Said differently, representatives of EUCs in deregulated states often referred to community development as a separate function than economic development. This raises questions about the distinction between community development and economic development, considering the previous assumption that EUCs participate in economic development by investing in the

community. The researcher concluded that EUCs in deregulated states generally participate in economic development by providing infrastructure, knowledge, and expertise; and participate in community development by investing in the community, working with EDOs, facilitating strategic planning, and other community involvement as previously described. Table 9 summarizes the responses, but according to one representative from a deregulated state, "We're involved but not directly involved. We just provide financial support to local organizations who then work with small business development."

Table 9

Question 5: Community Development/Small Business Development Activities

Questions	Regulated EUC	Deregulated EUC
What community development/small business development activities do you perform and what do you hope to achieve for your power company by doing these activities.	Facilitate strategic plan development We support leadership programs Asset development We help communities to develop a revenue stream for ED Encourage employee participation in community EDO Participate in a business incubator network Retail development Provide loans & grants for rural community development Work with local developers	Site Readiness Provide grants for community development We separate community development from ED Our representatives sit on community boards We work with community leadership orgs. Our corporate office provides some funding We have a community relations department separate from ED department We don't have rural towns; don't do typical community development activities We give community seminars We provide strategic planning We provide funding to local level EDOs for community dev. and small bs dev.

Few EUCs mentioned their support for entrepreneurship and business incubators. Entrepreneurs and small businesses support the local economy, and when considering EUC involvement in economic development, one would imagine they support small

business development. However, the researcher concluded that profit maximizing EUCs participate less in small business development because these businesses use less power and therefore, benefit the EUC less than large, heavy load businesses. Instead of directly influencing small business development, as in business attraction, EUCs from both regulated and deregulated states referred to their investment in the community as support for small businesses. They depend on the community to utilize these resources to influence small business growth.

Question Six

In order to gain further insight into what motivates these EUCs to participate in economic development as they do, and to determine if deregulation changes or detracts from that motivation, question six of the interview reinforces question one. It asks, "How do you benefit from participating in economic development." As a result, EUCs in deregulated states further expressed their concerns with ROI and shareholder satisfaction. By participating in economic development, which allows EUCs to increase their customer base and sales, they benefit by securing ROI and significant profits for shareholders.

Interestingly, both groups mentioned the benefit of political good will. Throughout the interviews many representatives referenced the significant affect of press releases and ribbon cuttings on their reputation and productivity. Though BR&E projects come more frequently and more easily, they appeal less to political officials who manage regulations and EUC concerns. Therefore, utilities benefit from participating in economic development by building rapport with political officials and the community as well. One representative from a regulated state explains, "We generate political good will;

regulators and politicians make decisions about our business and when you help bring jobs it helps to build relationships with them and helps them make good decisions concerning our business. It's good business for us."

In addition to these shared benefits by EUCs from both regulated and deregulated states, EUCs described project spin-offs, human development (improving the customer's ability to pay his electric bill), downward pressure on rates, and more. Nonetheless, both groups benefit primarily from increased revenue. After identifying these benefits, as shown in Table 10, the next questions seek to uncover how either electric regulation or deregulation affects these benefits and therefore the EUCs motive for participating in economic development.

Table 10

Question 6: EUC Benefit from Participating in Economic Development

Questions	Regulated EUC	Deregulated EUC
How do you benefit from participating in economic development?	Generate political good will By helping community to grow (a vibrant community is profitable for us) Increase customer base/sell more electricity More customers decrease cost/more jobs stabilize rates Increased Revenue More jobs allow more people to work and pay their electric bill	By helping to grow the economy It's good business; helps our community (Generate political good will) when community grows we grow It helps to grow our customer base It benefits ROI Builds strong community relationships We like watching our meter spin Profit; we have shareholders to please Project spin-offs Increased revenue Puts downward pressure on our rates

Question Seven

Question seven asked, "Why is your involvement in economic development so important to local/regional economic growth?" It intended to reveal why, from a community perspective, EUCs participate in economic development, and if their participation is as significant in a deregulated environment as in a regulated environment.

If, in fact, EUCs impact economic development less in a deregulated environment, one could conclude that they receive fewer benefits from participating in economic development, and are therefore less motivated to do so. The researcher found one clear distinction: EUCs in regulated states engage in economic development with the perception that their resources, infrastructure, capacity, and services make or break the business deal. Each of the five EUC representatives explained the significant impact of their participation in business attraction. According to one representative from a deregulated state, "Anytime a community recruits businesses, power is such a large concern for the business."

In contrast, EUCs in deregulated states consider their involvement as an extension to the community's economic development efforts. Said differently, EUCs in deregulated states assist economic development rather than lead it. As a result, the researcher concluded EUCs in deregulated states receive fewer benefits from participating in economic development and are therefore less motivated to do so. EUCs have fewer resources to impact economic development in a deregulated environment. Both regulated and deregulated states utilize EUCs to contribute continuity, knowledge, expertise, financial support, and ultimately attract businesses, but as shown in Table 11, EUCs in deregulated states influence economic development slightly less. Subsequently, questions eight, nine, and ten of the interview further support this claim: deregulation downsizes the role of EUCs in economic development. According to one representative from a deregulated state, "Energy is not the key, but one of the key issues...Utilities are fair brokers; they don't care which community gets the project because as long as it is in their territory they're still going to service it."

Table 11

Local/Regional Economic Benefits

Questions	Regulated EUC	Deregulated EUC
Why is your involvement in economic development so important to local/regional economic growth?	We bring expertise We bring continuity We can provide financial support We're one of the few catalyst for growth in the area *Electric bills are such a large business concern Electric infrastructure is such an important component of a company's decision to expand or locate in the area. Utilities bridge between state and local community If we all work together it makes the region more competitive Our presence/resources helps to attract businesses	EUC contributes continuity (elected officials change but utility representatives are consistent) EUCs are credible; an objective source of info. We bring our expertise on infrastructure to the table We help communities leverage their dollars We increase our service territory/regional prosperity Energy efficiency *Energy is not the key but one of the top 10 issues Utilities are fair brokers (less concerned with which community wins project as long as its inside service area) We keep issues that are important to business in front of the community at all times.

Question Eight

Question eight asks the EUC "How do you feel about regulation." By this question the researcher intended to determine if EUCs from both groups prefer operating in a regulated environment, and if regulation contributes to the aforementioned benefits. If, in fact, regulation contributes to these benefits, one could conclude that deregulation might change the motive, level of involvement, and method of EUCs participation in economic development. The researcher found that EUCs from both regulated and deregulated states agree that a regulated environment enhances their role in economic development. As shown in Table 12, answers from both groups, such as, "we prefer regulation," "regulation increases productivity," and "regulation makes economic development easier," allow the researcher to draw such a conclusion. More specifically, representatives of EUCs in regulated states explained that regulation more strongly

supports utility economic development efforts because it provides the EUC with negotiation power when competing for new business opportunities. Likewise, it simplifies the industry and the economic development process, reduces risks, and rewards the EUC for its investments in both infrastructure and economic development. Similarly, three representatives of EUCs in deregulated states explained that regulation increases productivity, most likely because it reduces risk and rewards the EUC for its investments, balances costs, and makes it easier to offer incentives and participate in economic development. Regulation makes it easier because EUCs know of available resources and possess more funding for incentives. Additionally, regulation establishes a standard electric rate which reduces uncertainty for the prospective business and increases negotiation power for the EUC. For example, one representative from a deregulated state expressed, "We operate in both regulated and deregulated states and regulation increases productivity. The EUC knows what resources it can offer the customer."

Table 12

EUC Perception of Electric Regulation

Questions	Regulated EUC	Deregulated EUC
How do you feel about regulation?	Regulation is preferred Regulated utilities have more support Regulated utilities more likely to recover their ED investments Defined territory makes business easier Regulation gives EUC negotiation power/marketing power Regulation provides the best option to date. Good Checks and Balance system Protects customer and EUC Regulation simplifies a complex industry Regulation rewards the EUC for doing a good job	Regulation increases productivity The EUC knows what resources are available to offer customer Our participation in ED has not changed ED is easier when you know what the customer will pay Best if you're going to have a monopolistic system Regulation balances cost (too costly to duplicate systems)

Question Nine

In order to fully assess the impact of deregulating on EUC involvement in economic development, the researcher intended to compare the aforementioned benefits of regulation to the possible benefits of deregulation. Therefore, question nine asked the representative "What, if any, are the benefits of electric deregulation."Akin to the results from question eight, both groups shared similar perspectives about deregulation. According to EUC representatives from regulated states, deregulation increases electric rates and weakens EUC competitiveness. It possibly benefits heavy load users, such as large industrial businesses and manufacturers, but almost always negatively affects small businesses and residential customers. In general, EUCs in regulated states disapprove of deregulation. Two EUC representatives specifically said deregulation benefits nothing. Similarly, three representatives of EUCs in deregulated states explained that deregulation allows rates to fluctuate and fails to reduce them. They explain it increases uncertainty for both the utility and the consumer. According to one representative from a deregulated state, "There is no benefit for deregulation. It would make my job easier if I had control over what customer pays. In a competitive environment the customer is suppose to pay less, but that hasn't happened."

Instead, it reduces the EUCs available funding for economic development, among other resources, and therefore influences the EUC to downsize its economic development staff; reducing its economic development impact. Many utilities in deregulated states expressed their disapproval of deregulation, admitting that it often decreases revenue and increases uncertainty. Additionally, they explain the entrance of power marketers into the industry increased electric rates. In fact, one representatives explained that deregulation

makes economic development competition more difficult when competing against utilities in regulated states. EUCs from deregulated states did, however, draw some positive conclusions to electric deregulation. On a more positive note, deregulation occasionally decreases costs for the EUC, increases energy efficiency activities, and provides the customer with more choices.

Based on the general answers from both groups, the researcher identified the following distinctions. Within a deregulated environment EUCs participate less in economic development as a result of reduced funding and increased risk of recovering an adequate ROI. Partly because of power marketers, EUCs experience rate increases in a deregulated environment, and therefore become less competitive. This environment, however, encourages EUCs to increase their energy efficiency efforts and operate more cost efficiently. Table 13 summarizes the EUCs' responses.

Table 13

EUC Perception of Electric Deregulation

Questions	Regulated EUC	Deregulated EUC
What, if any are the benefits of electric deregulation?	No benefits Deregulated states have higher rates Deregulation causes rates to fluctuate Deregulation weakens EUC competitiveness Good for industrial, bad for small business and residential customers The philosophical approach and business approach contradict each other. So far all attempts have increased customer bill instead of decreased it Deregulation doesn't apply to our EUC	No benefits More uncertainty EUCs have to invest more in infrastructure Less Revenue Allows rates to adjust to market conditions Deregulated EUCs have less money so smaller ED staff Utilities don't participate as much in ED because they have less money Overall electric competition is good Competing against a regulated utility is more difficult Our cost for ED are recovered in our rates Competition has not reduced rates Power marketers increase prices Costs decrease Customer base Depends on regulatory environment Companies don't get a discount rate; have to negotiate with retail provider Encourages energy efficiency Customer has more choices Electric functions grow into separate

Question Ten

Question 10, similar to question six, sought to confirm the derived conclusions concerning deregulation. It asked, "How would electric deregulation affect your involvement in economic development." General statements from both groups confirmed the previously reached conclusions. EUCs in regulated states expect deregulation to decrease funding and economic development investments, and completely change the way they operate. Both groups mentioned that deregulation increases infrastructure costs which conflicts with the previous assumption that deregulation reduces costs. The affect on costs possibly varies between states because of each state's different approach toward electric deregulation. Furthermore, each of the five EUC representatives from deregulated states confirmed the prediction that deregulation changes how EUCs operate. According to them, deregulation separates the electric utility functions into different companies. Some utilities diverted to a hybrid deregulated system. Additionally, three EUC representatives from deregulated states mentioned deregulation reduced their resources and influenced them to downsize their economic development staff, therefore decreasing their involvement in economic development. One representative from a deregulated state provided some insight into why effects of deregulation often contradict with theory. He says, "Enron promoted deregulation in all the states; people would have to build lots of cheap generation and that technology does not exist. At first utilities felt in deregulation they don't need to participate in ED, now many EUCs are rebuilding their ED involvement."

Ultimately, as shown in Table 14, both groups confirmed that in deregulation EUCs devote fewer resources towards economic development.

Table 14

Effects of Deregulation

Questions	Regulated EUC	Deregulated EUC
How would electric deregulation affect your involvement in economic development?	Invest less in ED Decrease the level at which we participate but would not change the manner in which we participate Completely change the way we operate All bets are off Less loyal No effect Expand our territory It would conflict with how we distribute electricity (would have to tariff distribution lines) Increase cost (Infrastructure costs more in the South)	Affects the resources and amount of dollars available Makes resources more scarce Some EUCs withdrew from participating in ED Deregulation has not changed our involvement in ED ED not always a primary concern Nobody is building new generation assets (question 9) Divert to a hybrid deregulated system Our costs are included in the retail business prices Power plant can't afford to build excess capacity Only retailer sales/communicates with end user EUCs may start to look at opportunities from a business perspective Corporate invests more in retail and downsizes ED component

In summary, these interviews revealed that EUCs from both regulated and deregulated states participate in economic development in order to increase revenue, and EUCs from both environments believe deregulation detracts from their role in economic development. Although EUCs from both regulated and deregulated states participate in economic development to grow their business, government obligates regulated EUCs to participate as well. This evidence of the interviews supports the indication that EUCs in regulated states participate in public services as a responsibility, and EUCs in deregulated states participate in an effort to enhance likability, i.e., score political points, as revealed in the literature review. EUCs participate in economic development by attracting businesses to the local community or region, enhancing relationships with existing businesses, and investing in the community. However, EUCs from deregulated states take

a slightly different approach to attracting businesses. EUC representatives from deregulated states revealed in the interviews that they take a less proactive approach to attracting businesses. Meaning, EUCs from deregulated states take less initiative to develop leads and pursue prospects than EUCs from regulated states. Reduced funding, staff, resources, etc., and increased risks as a result of deregulation influences this reaction. EUC representatives from regulated and deregulated states alike expressed their preference of regulation above deregulation. Regulation manages the industry and reduces risks. According to these respondents, it makes EUCs more competitive and strengthens their economic development influence. Deregulation, on the other hand, increases uncertainty of recovering infrastructure investments, affecting the method by which these EUCs participate in economic development. They incentivize businesses by solely providing infrastructure, knowledge, and expertise, rather than funding. These EUCs participate in economic development from slightly more of a business perspective. Lastly, EUCs from deregulated states expressed slightly more concern with excess capacity, energy efficiency, and energy conservation than EUCs from regulated states. These EUCs experienced an increase in risk and a decrease in efficiency as a result of vertical segregation (i.e., the separation of each electric function into its own business). A transcription of each interview is included in the appendix.

Analysis of Websites

The researcher conducted a third round of research in search of more evidence. In this round, the researcher found stronger evidence in support of the previously mentioned conclusion. This round consisted of conducting website analysis of 20 EUCs: 10 from regulated states and 10 from deregulated states. This analysis revealed that EUCs in

regulated states provide more economic development information on their websites than EUCs in deregulated states. More specifically, of the seventeen business attraction criteria used, the websites of EUCs in regulated states met on average 9.8 of these criteria; EUCs in deregulated states met an average of 6.6. Of the regulated EUCs, the website with the most business attraction information met 13 of the 17 criteria. In deregulated states, the website with the most business attraction information met only 10 of the 17 criteria. Likewise, of 12 BR&E criteria used, EUCs from regulated states met on average 6.1 of these criteria, and EUCs from deregulated states met 4.5. Of the regulated utilities, the website with the most BR&E information met 11 of the 12 criteria. The deregulated utility with the most information met seven of the 12 criteria. Of the seven criteria used to measure community development involvement, EUCs in regulated states met on average 3.6 of them; EUCs from deregulated states averaged 2.3. The website with the most community development information within the group of utilities from regulated states met seven of the seven criteria, and the website with the most of this information within the group of utilities from deregulated states met three.

As shown in Table 16, EUCs in regulated states provided more economic development information on their websites than EUCs in deregulated states; however, EUCs in deregulated states provided more information for three criteria. Refer to Table 15 for a list of these three criteria. In the business attraction analysis, EUCs in deregulated states provided up-to-date information more commonly than EUCs in regulated states. Of the 10 EUCs from deregulated states, all of them provided up-to-date information. In contrast, only eight EUCs from regulated states did so. This finding may reflect that EUCs in regulated states become complacent as a result of their monopolistic

position. Unlike them, EUCs in deregulated states lack this luxury and therefore utilize their resources more efficiently.

Secondly, in BR&E utilities in deregulated states provided slightly more information concerning electric regulations. Eight of ten EUCs in regulated states provided information about regulations, but nine of ten EUCs from deregulated states provided this information. Assuming this trend continues throughout the industry, this margin suggests that EUCs in deregulated states provide more information concerning infrastructure/energy regulations in an effort to assist the prospective business and compensate for other economic development reductions, as determined in question two of the interview.

Thirdly, in community development, seven of ten EUCs from deregulated states provided low income community development information on their websites. Of the 10 EUCs in regulated states only five provided this information. This slight lead may suggest that because of increased rates in deregulated states, EUCs work harder to assist the community in managing its electric bill. Of the remaining 33 criteria, EUCs from regulated states outscore EUCs from deregulated states. Figure 9 further illustrates this finding.

Table 15

Website Analysis Results- Strengths of Deregulated EUCs

Criteria	Regulated total	Deregulated total
Up-to-date info.	8	10
Electric regulations	8	9
Low income assistance	5	7

Table 16

Website Analysis Results- Summary

	Regulated Avg.	Deregulated Avg.
Business Attraction (17 criteria)	9.8	6.6
Highest Score:	13	10
BR&E (12 criteria)	6.1	4.5
Highest Score:	11	7
Community Development (7 criteria)	3.6	2.3
Highest Score:	7	3

Note. The number charted is the average number, based on the number of criteria used, of activities that EUCs, in either regulated or deregulated states, provided on their website.

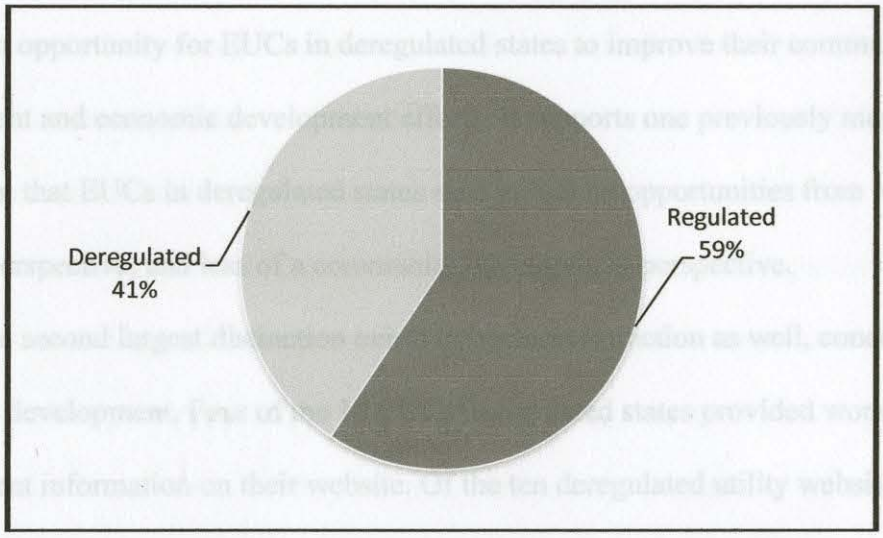

Figure 9. EUC Participation in Economic Development. Website analysis results- percentage of EUC economic development involvement, regulated v. deregulated states.

The three largest distinctions between websites from regulated states and websites from deregulated states exist in business attraction and community development. In

business attraction one criteria measures if EUCs market their community resources in order to attract businesses. As previously determined, EUCs in deregulated states participate in economic development by assisting the community; however, according to the website analysis, EUCs in regulated states market their community resources more aggressively. Of the ten websites of EUCs in regulated states, six of them provided a list of their community's resources. None of the 10 websites from deregulated states provided this information. Instead, most of the information provided on these websites consisted of electric service, electric bill payment, outages, energy efficiency and conservation, innovation, and the website often instructed prospects to contact the utility or EDO directly for economic development information. In fact, one website's economic development information consisted of a single project application instructing prospects to submit an application for assistance. This EUC referred to economic development as an occasional program for businesses to participate in, rather than a practice. This finding presents an opportunity for EUCs in deregulated states to improve their community development and economic development efforts. It supports one previously mentioned conclusion: that EUCs in deregulated states start to look at opportunities from more of a business perspective, and less of a community development perspective.

The second largest distinction exists in business attraction as well, concerning workforce development. Four of the 10 EUCs in regulated states provided workforce development information on their website. Of the ten deregulated utility websites analyzed, none provided workforce development information as a business attraction tool. Typically, EUCs in an effort to both equip the community for potential jobs, and increase productivity and cut costs for businesses, participate in workforce development.

Considering earlier claims that EUCs in deregulated states work more commonly through the community to impact economic development, one would assume that EUCs in deregulated states participate in workforce development more than EUCs in regulated states. However, the website analysis refutes this assumption. Nonetheless, this finding supports the previously reached conclusion that EUCs in deregulated states assist economic development rather than create it. They do so by working with the regional EDO that, in fact, provides workforce development resources. One EUC from a deregulated state mentioned, however, providing financial support to human development organizations in the community development component of the web analysis.

Thirdly, the website analysis revealed a significant distinction between the levels of technical assistance provided by both groups. In the analysis of each group's community development efforts, the researcher found that EUCs in deregulated states provided less technical assistance to the community on their websites. Of the 10 websites analyzed, six EUCs from regulated states provided community development technical assistance information. Only two EUCs from deregulated states provided this information. As revealed on the websites, much of the EUCs community development involvement consists of providing support and funding to non-profit organizations and schools, volunteering, and serving as board members of regional organizations. Few EUCs from either group provided information concerning community development workshops for example, nor did they provide a resource for community leaders to communicate with EUC representatives. These findings provide an additional opportunity for EUCs in deregulated states to improve their community development and economic development efforts, and directly influence community growth.

Among these distinctions, EUCs in regulated states provided more information concerning available sites and buildings, demographics, the service territory, incentives, and trainings/webinars. They also provided more GIS capability. Interestingly, however, the web analysis suggests that deregulation influences innovation no more than regulation. Of the 10 EUCs from regulated states, three provided information concerning innovations, and of the EUCs from deregulated, two provided this information. Refer to the data in Tables 17-21 and Figures 10-12 for a complete summary of the website analysis results.

Table 17

Website Analysis Results- Business Attraction

	Regulated	Deregulated
Attraction		
Tax/Non Tax incentive	8	7
Site & Building Info.	6	3
Services & Procedures	7	5
Permit/License	1	0
Workforce Development/training	4	0
Demographic info.	4	1
GIS capability	8	4
Press releases/media	10	9

Table 17 (continued).

Trade shows/schedules	4	1
Reach out to BS that left comm.	0	0
Description of community	4	3
Up to date info.	8	10
Contact info.	10	10
Site selector tab	1	0
ED tab	8	7
Map of Territory	9	6
List of community resources	6	0

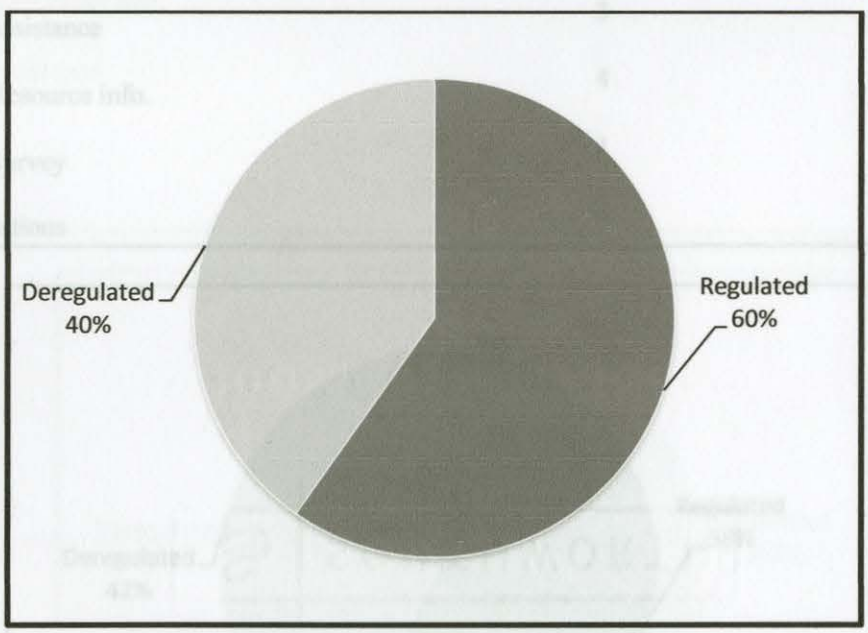

Figure 10. EUC Participation in Business Attraction. Website Analysis Results- Business Attraction.

Table 18

Website Analysis Results- BR&E

	Regulated	Deregulated
Technical Assistance	6	4
Business Assistance programs	5	2
Trade/Export assistance	1	0
Energy Cost Reduction	10	10
Energy Audit	9	9
Permit/License	1	0
Workforce Development/training	4	0
Tax/NonTax Incentives	9	7
Financial Assistance	3	1
Technical Resource info.	4	2
Customer Survey	1	1
Area Regulations	8	9

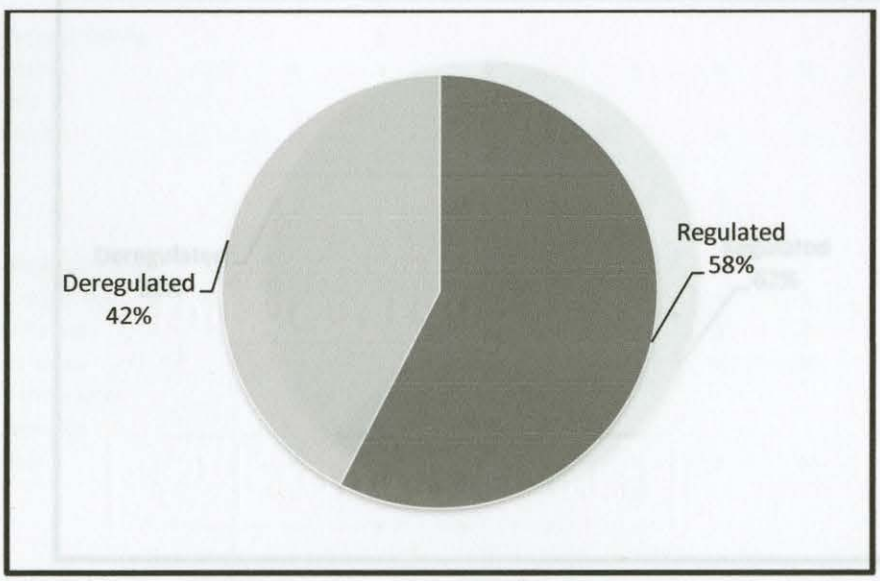

Figure 11. EUC Participation in BRE. Website Analysis Results- B R & E.

Table 19

Website Analysis Results- Community Development

Community Development	Regulated	Deregulated
Workforce Development/training	4	1
Low Income community dev.	5	7
Promote Health/education	10	10
Target Community assets	4	0
Provide sector to create jobs	1	0
Promote local Ownership	1	0
Technical Assistance	6	2
Grants	2	0
Innovation	3	2

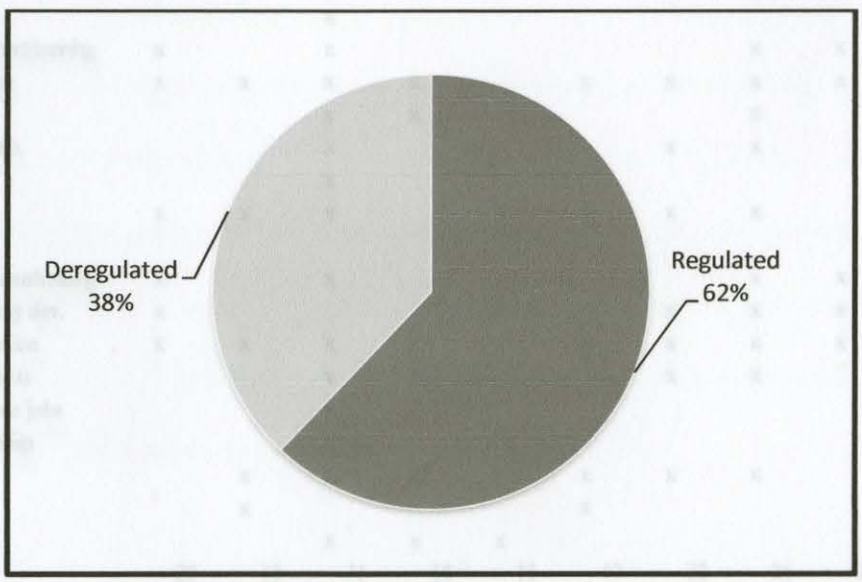

Figure 12. EUC Participation in Community Development. Website Analysis Results-Community Development.

Table 20

Website Analysis Results- Summary of Regulated States

Website Criteria	EUCs in regulated states									
	CLECO, LA	GA Power	Madison G&E	MN Power	Green M. Power	Indianapolis P&L	TECO, FL	MS Power	Duke Energy	Kansas City P&L
Tax/Non Tax incentive	x	x	x	x			x	x	x	x
Site & Building Info.	x	x	x					x	x	x
Services & Procedures	x	x	x	x			x	x	x	
Permit/License			x							
Workforce Development/training	x		x					x	x	
Demographic info.		x	x				x	x		
GIS capability	x	x			x	x	x	x	x	x
Press releases/media	x	x	x	x	x	x	x	x	x	x
Trade shows/schedules	x			x	x				x	
Reach out to BS that left comm.										
Description of community			x	x		x		x		
Up to date info.	x	x	x		x	x	x	x	x	
Contact info.	x	x	x	x	x	x	x	x	x	x
Site selector tab										x
ED tab	x	x	x	x			x	x	x	x
Map of Territory	x		x	x	x	x	x	x	x	x
List of community resources		x	x	x			x	x		x
Technical Assistance		x	x				x	x	x	x
Business Assistance programs	x		x	x			x		x	
Trade/Export assistance							x			
Energy Cost Reduction	x	x	x	x	x	x	x	x	x	x
Energy Audit	x	x	x	x		x	x	x	x	x
Permit/License			x							
Workforce Development/training	x		x					x	x	
Tax/NonTax Incentives	x	x	x	x		x	x	x	x	x
Financial Assistance			x	x				x		
Technical Resource info.			x				x	x		x
Customer Survey			x							
Area Regulations	x	x	x		x	x	x	x		x
Workforce Development/training	x		x					x	x	
Low Income community dev.	x				x		x	x	x	
Promote Health/education	x	x	x	x	x	x	x	x	x	x
Target Community assets			x	x			x	x		
Provide sector to create jobs			x							
Promote local Ownership			x							
Technical Assistance		x	x	x		x	x	x		
Grants		x				x				
Innovation			x	x	x					
Total	20	18	31	18	11	13	22	26	20	16
Regulated Average:					19.5					

Table 21

Website Analysis Results- Summary of Deregulated States

Website Criteria	EUCs in deregulated states									
	BGE	First Energy, Ohio	DP&L	El Paso Electric	UI, Connecticut	Banger Hydro	Con Edison	Empire, MO	Duquesne Light	Central Hudson G&E
Tax/Non Tax incentive	x			x	x	x	x		x	x
Site & Building Info.	x	x						x		
Services & Procedures	x	x	x	x			x			
Permit/License										
Workforce Development/training										
Demographic info.		x								
GIS capability	x	x		x				x		
Press releases/media	x	x		x	x	x	x	x	x	x
Trade shows/schedules				x						
Reach out to BS that left comm.										
Description of community	x		x		x					
Up to date info.	x	x	x	x	x	x	x	x	x	x
Contact info.	x	x	x	x	x	x	x	x	x	x
Site selector tab										
ED tab	x	x			x		x	x	x	x
Map of Territory	x			x		x		x	x	x
List of community resources										
Technical Assistance	x		x				x		x	
Business Assistance programs	x								x	
Trade/Export assistance										
Energy Cost Reduction	x	x	x	x	x	x	x	x	x	x
Energy Audit	x	x	x	x	x		x	x	x	x
Permit/License										
Workforce Development/training										
Tax/NonTax Incentives	x			x	x	x	x		x	
Financial Assistance			x							
Technical Resource info.	x		x							
Customer Survey			x							
Area Regulations	x	x	x	x	x	x	x		x	
Workforce Development/training					x					
Low Income community dev.	x	x	x	x			x	x	x	x
Promote Health/education	x	x	x	x	x	x	x	x	x	x
Target Community assets										
Provide sector to create jobs										
Promote local Ownership										
Technical Assistance	x		x							
Grants										
Innovation					x		x			
Total	20	13	14	14	13	9	14	11	14	12
Deregulated Average:					13.4					

CHAPTER V

ANALYSIS

In an effort to test the hypothesis: EUCs in deregulated states devote fewer resources to economic development than EUCs in regulated states, the researcher conducted a series of interviews of electric utility directors and website analysis of EUC websites. Based on the results of this research, the aforementioned hypothesis is supported. EUCs in deregulated states do, in fact, devote fewer resources toward economic development than EUCs in regulated states. The researcher identified consistencies between results from the interviews and website analysis, and reached six conclusions.

Conclusion one

EUCs in deregulated states participate in economic development from slightly more of a business perspective than EUCs in regulated states. As first revealed in the interview research phase, EUCs in deregulated states express more concern with ROI and the increased pressure to ensure recovery of infrastructure investments. This risk influences their motive for participating in economic development and influences the EUC to provide more information concerning electric service, electric bill payment, regulations, and energy efficiency and conservation on their website, and less technical assistance information. The website analysis confirmed this conclusion. EUCs in deregulated states provided less technical assistance and incentive information on their websites than EUCs in regulated states.

Conclusion two

EUCs in deregulated states participate in economic development by contributing infrastructure, knowledge and expertise, instead of funding. The interview research phase revealed that although EUCs in both regulated and deregulated states target high load customers, EUCs from deregulated states devote fewer dollars to incentivizing new business development. Some EUC representatives from deregulated states expressed they provided zero funding to obtain new business opportunities. EUCs from deregulated states provided more information concerning electric infrastructure regulations on their websites than EUCs in regulated states. This suggests that EUCs in deregulated states provide more infrastructure information to compensate for reductions in their economic development efforts.

Conclusion three

EUCs in deregulated states become less proactive in generating leads. EUCs in deregulated states rely more heavily on the business or EDO to present opportunities. At that point, EUCs bring knowledge, expertise, infrastructure, and a few energy related incentives to the table. The website analysis supports this claim that EUCs in deregulated states are less proactive. EUCs in deregulated states provided less business attraction information on their websites than EUCs in regulated states.

Conclusion four

EUCs in deregulated states assist economic development rather than create it. As revealed in the interview research phase, EUCs in deregulated states generally engage in economic development through their community involvement; although the website analysis reveals an opportunity for these EUCs to participate more directly in workforce

development and marketing their community resources. Their role reflects an extension to the community EDO. The realization from the website analysis that EUCs in deregulated states commonly refer to their partnerships with regional EDOs, but provide little if any information concerning workforce development, technical assistance, community resources, etc., suggests that community organizations inherit these functions from the EUC in a deregulated environment. The EUC, therefore, becomes an assistant to the organization.

Conclusion five

Deregulation changes the motive, level of involvement, and method of EUC participation in economic development. Results from the interview questions revealed that deregulation de-motivates utilities from participating in economic development as a result of fewer available resources and economic development benefits. These EUCs, therefore, downsize their economic development staff and reduce funding for economic development activities. The website analysis confirmed that deregulation changes the EUC's economic development motive, level of involvement, and method of participation. Based on the website analysis, as previously explained, EUCs in deregulated states are motivated to participate in economic development by ROI instead of new business development. They become more electric-business oriented and provide less technical assistance to prospective businesses and the community. Additionally, EUCs in deregulated states provided fewer resources for each component of the web analysis, suggesting a decrease in economic development involvement. As determined, unlike EUCs in regulated states, EUCs in deregulated sates participate as an extension of the EDO; and both the interviews and website analysis suggest that many EUCs eliminated

their economic development practice as a result of deregulation and divert to other methods, such as an occasional program for businesses to submit an application for assistance.

Conclusion six

EUCs in deregulated states operate more cost efficiently than EUCs in regulated states. From the interview research phase, the researcher gathered that increased costs, resource reductions, and higher rates influence EUCs in deregulated states to better manage load capacity and to promote energy efficiency and conservation. The website analysis supports this conclusion by revealing that EUCs in deregulated states participate more in low income community development and provide more up-to-date information. The finding that EUCs in deregulated sates provide more low income community development information suggests that these EUCs work harder to manage sales (i.e. capacity) and educate the community on practicing energy efficiency and conservation. Additionally, the conclusion that EUCs in deregulated states provide more up-to-date information on their websites than EUCs in regulated sates suggests that these EUCs work more efficiently to use recent project developments and information to attract businesses. These EUCs also devote less funding to economic development, and utilize infrastructure, knowledge and expertise to attract businesses instead. Additionally, they more strongly emphasize energy efficiency, and both of these characteristics suggest these EUCs operate more cost efficiently.

CHAPTER VI

CONCLUSIONS

Implications for Practice and Policy

From the perspective of the EUC, this research suggests EUCs in deregulated states will identify areas of improvement to their website as well as their community development involvement (e.g. marketing community assets and workforce development). Additionally, they will identify opportunities to improve energy efficiency (manage fluctuating demand and improve separation of vertical integration). Lastly, EUCs in deregulated states will identify opportunities to provide more technical assistance considering the amount of billing information provided in relation to asset marketing.

From the perspective of the government and/or regulators, they will not implement the mandatory price pool as in California and England and Wales. Instead, they will consider a hybrid program to introduce deregulation into the industry. Regulators will also use this data in support against electric deregulation. In deregulated states, they will require the regulated T&D companies to participate in economic development and provide public services in order to maintain adequate EUC participation in economic development.

From the perspective of the economic developer, he will meet with the EUC and government officials to identify opportunities to improve EUC involvement in economic development. Additionally, he will meet with EUCs to capitalize on opportunities to better market community assets. He will also communicate with EUCs to increase their workforce development involvement.

Limitations of Research and Indications for Future Research

Additional questions concerning this research include the role of power marketers and/or electric generators in economic development within a deregulated environment. Considering the reduced involvement by EUCs (IOUs, MOUs, cooperatives) in economic development within deregulation, the question exists if retail and/or generation companies become more or less involved as a result. A second unanswered question includes the reasoning behind IOUs' greater involvement in economic development than MOUs. One would assume that public companies work harder to develop the local economy than private companies. However, according to the researcher's findings, privately owned, profit-maximizing companies participate more. Further research concerning what motivates MOUs to participate in economic development could reveal a clearer distinction between the two. Thirdly, this research neglects to explain how deregulation affects electric rates in deregulated states. As revealed, deregulation increases electric rates in deregulated states, however, this research disregards the extent to which deregulation increased these rates per state. An in depth analysis of the impact of deregulation on these rates is needed to determine the significance of deregulation on them. Lastly, this research suggests that companies fled from deregulated states as a result of increasing rates and uncertainty. This assumption requires more research to determine if, in fact, a significant amount of customers fled deregulated states during the early stages of deregulation, and to where did they find refuge.

APPENDIX A

INSTITUTIONAL REVIEW BOARD NOTICE OF COMMITTEE ACTION

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **12092002**
PROJECT TITLE: **Regulation vs. Deregulation of Electric Utility Industry**
PROJECT TYPE: **Thesis**
RESEARCHER/S: **Jessica Cheeks**
COLLEGE/DIVISION: **Graduate School**
DEPARTMENT: **Economic and Workforce Development**
FUNDING AGENCY: **N/A**
IRB COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF PROJECT APPROVAL: **10/04/2012 to 10/03/2013**

Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair

APPENDIX B

DEFINITION OF KEY TERMS

Avoided Cost- The electric utility's "would be" cost for producing the power itself or purchasing it from somewhere else.

Capital Intensive- A business process or an industry that requires large amounts of money and other financial resources to produce a good or service. A business is considered capital intensive based on the ratio of the capital required to the amount of labor that is required (investopedia.com).

Capture theory of Regulation- A compact, well-organized group, like a group of producers, will have a competitive advantage over a disperse group, like consumers, in influencing regulatory action so that it is able to capture the benefits of regulatory action (Vora, n.d., p.1,).

Competition- Two or more entities vying for the same business or opportunity; in the power industry, competition is being created at two levels: wholesale (generation) and retail (distribution).

Deregulated states-Those states within the U.S. that have adopted and currently operate under electric deregulation.

Distribution- Load delivery of power to consumers involves breaking up bulk quantities of power into "household" size amounts, and routing it to homes and business via thinner wires on smaller towers (or in some cases underground); distribution lines carry a much lower voltage of power (Philipson, 2005, p. 2).

Economic Development- when a community's standard of living is preserved and increased through a process of human and physical development that is based on principles of equity and sustainability (Blakely, Leigh, 2010, p. 75)

Economic Development Rider- Some form of special price provided for a user that policy makers determine deserves a unique rate for service (Robinson, 2009)

Electric deregulation- open market competition; a government changes the monopoly franchise rules, or other regulations that affect how electric companies do business, and how customers buy electric power and services (Philipson, 2005, p. 3).

Electric rate incentives- a reduction of a major expense for heavy load customers; they may also lock in a major power customer for a long term electric service contract (Robinson, 2009).

Electric regulation- The Federal Energy Regulatory Commission, or FERC, manages or regulates the interstate transmission of electricity, natural gas, and oil by controlling how electric companies do business, and how customers buy electric power and services.

Electric restructuring- Disassembly of the power industry and re-assembly into another form or functional organization. This is usually done with laws or regulations that leave the details up to the electric utilities. It often involves the creation of new government agencies or cooperative arrangements between electric companies and the government (Philipson, 2005 p.3).

Electric utility-Geographically distributed electric power system composed of generators, transmission and distribution lines, transformers, breakers, regulators, capacitors, sectionalizers, meters, monitors, control systems, etc. (Philipson, 2005, p. 4).

Generation-Power production, the actual manufacturing of electric power, by converting some other form of energy, be it coal, nuclear, fission, fallen water, or sunlight, into electricity (Philipson, 2005, p. 2)

High load customer- customer who uses a significant amount of electricity per month, approximately 50,000 to 100,000 kwhr.

Holding Company- a company that controls other subsidiary companies.

Incumbent utility- the utility that, prior to electric deregulation, holds franchise rights to be the sole provider of power to a specific territory.

Market Power- conditions where the providers of a service can consistently charge prices above those that would be established by a competitive market (Alvarado, 1998).

Marginal Cost Structure-The firm must take into account the marginal cost, the cost associated with one additional unit of production, when manufacturing a product or providing a service.

Natural Monopoly- A natural monopoly is where, for technical and social reasons, it is most efficient to have only one provider of a good or service (Edison Electric Institute, 2010).

Normative-Positive theory- regulatory action is designed to correct market failures to the benefit of consumers (Vora, n.d., p.1).

Power Service Marketers- competitive retailers that buy power in bulk at the wholesale level and resell it to consumers; rent space on the transmission and distribution systems in order to move their power to consumers (Philipson, 2005, p. 16).

Power grid- A system of high tension cables by which electrical power is distributed throughout a region (dictionary.com)

Regulated states- Those states within the U.S. that still operate under electric regulation.

Service/retail- Measuring and billing consumers for the power delivered, and perhaps providing other services, such as energy efficiency or power quality automation (Philipson, 2005, p. 2).

Stranded Costs- costs that the utilities were permitted to recover through their rates but whose recovery may have been impeded or prevented by the advent of competition in the industry (Sidak & Baumol, 1995).

Transmission- Moving bulk quantities of electric power long distances, as from hydro-electric power plants deep in the mountains to large cities on the coast, via thick wires on tall towers; they carry high-voltage electricity (Philipson, 2005, p. 2).

Vertical integration- performing all the functions involved to produce and sell electric power for an area of the country (Philipson, 2005, p. 5)

Vesting Contract- A bilateral contract between generators and retailers, where generators agree to sell a specified amount of electricity at a specified price, for a specified time period.

APPENDIX C

ACRONYMS

AC	Alternating Current
BR&E	Business Retention & Expansion
CAA	Clean Air Act
CEGB	Central Electricity Generating Board
ED	Economic Development
EDO	Economic Development Organization
EEI	Edison Electric Institute
EPAct	Environmental Protection Act
ERCOT	Energy Reliability Council of Texas
EUC	Electric Utility Company
FERC	Federal Energy Regulatory Commission
IOU	Investor Owned Utility
MEDC	Mississippi Economic Development Council
MOU	Municipality Owned Utility
NETA	New Electricity Trading Arrangements
NGC	National Grid Company
OAPEC	Organization of Arab Petroleum Exporting Companies
PP&L	Pennsylvania Power and Light
PUC	Public Utility Commissions
PURPA	Public Utilities Regulatory Policies Act
QF	Qualifying Facilities

REA	Rural Electrification Administration
REC	Regional Electric Company
ROI	Return on Investment
SB7	Senate Bill 7
TVA	Tennessee Valley Authority
T&D	Transmission & Distribution

APPENDIX D

INTERVIEW TRANSCRIPTIONS

Representative 1

1. Why do you participate in economic development?
   I love it. Our economic development efforts began when our company was formed. It was considered a core component of our business. Economic development is embedded in our history and the culture of our company. We see it as an opportunity to grow our company and help the community.

2. Who do you target?
   a. Site location consultants
   b. Existing industry (to inquire if they want to grow)
   c. Multipliers (companies outside of the foot print)
   d. Federal Delegation (to communicate with them)

3. What attraction activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We invite site consultants in. We take geographic recruiting trips. We call on companies that show an interest in our state. We conduct executive tours. We identify top assets in the service territory and invite companies to come and preview our assets. We highlight our advanced materials.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We want to retain what we have- it's easier to retain businesses than recruit new ones. We have an internal/major account department. Account Representatives are assigned to larger industrial customers. They contact these customers once a week, and identify needs and opportunities. We work with the local EDO on joint calls. We thank our existing businesses by providing incentives and annual events/banquets. We share in the business' cost.

5. What community development/small business development activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We participate in small business development. We want our communities to be strong in order to retain businesses and attract new ones. We conduct strategic

planning exercises, leadership programs, group facilitation for non-profits, demographic profiling (SWOT) for each community, and asset/site development. Additionally, we educate our communities on the economic development process. We want our communities to be a quality place to live and attractive to other companies.

6. How do you benefit from participating in economic development?

   We generate electric power which is not easily stored. As our customers increase, our costs decrease and our revenue increases. People have more jobs, and the community improves. It increases the tax base for the state and helps to stabilize our rates.

7. Why is your involvement in economic development so important to local/regional economic growth?

   The trend of economic development today is regionalism. It is difficult for rural areas to stand alone and put up impressive statistics. It's good to work with regional organizations.

8. How do you feel about regulation?

   Regulation is a good checks and balance system. It protests the customer and the EUC. It rewards the EUC for doing a good job. Because the electric industry is so complex, regulation is positive.

9. What, if any are the benefits of electric deregulation?

   No benefits to the customer or the EUC. Look at California for an example.

10. How would electric deregulation affect your involvement in economic development?

    It would change the business model that we use. We have a current geographic foot print, but with deregulation that territory is uncertain and too broad. Economic development, in deregulation, is no longer an accurate term because all bets are off- customers can purchase power from any EUC. Deregulation negatively affects customer loyalty. Unlike telephone and trucking industries, you can't put electric power in a box and store it. It doesn't fit the standard capitalization model that competition will drive down. Our current rates are lower than the national average. Why would we enter a market with EUCs that have higher rates?

Representative 2

1. Why do you participate in ed?

   We are mandated by government to participate in ed. We have three main goals: provide power to depressed region, conduct environmental stewardship, and participate in economic development.

2. Who do you target?

   Investor owned utilities. Our first goal is to increase our revenue base from industrial customers to pay our stock holders. We do industrial recruitment. We chase the following projects: advanced manufacturing, auto and transportation, data centers, plastic and packaging, and solar component manufacturing.

3. What attraction activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We have Target Market Specialist who fly around the country to talk about our offerings and opportunities.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We provide a power driven incentive to lower the company's power bill in 5 years. We give companies discounts on power loads that lower amount of power used. We give credit back over 5 year term when they make investment. We are always at the table with large projects. We benefit because companies to be our customer and have a positive economic impact on the community.

5. What community development/small business development activities do you perform and what do you hope to achieve for your power company by doing these activities?

   Not as involved with small business development as we are with larger projects. We participate in a business incubator network. We have a specialist that goes into interested communities and does retail development and advises communities on how to recruit retail. We do not incentivize retail to come into the area.

6. How do you benefit from participating in economic development?

Positive financial impact on revenues. Diversify the revenue mix. Recruit businesses that employ our residential customers so they can in return pay their light bill.

7. Why is your involvement in economic development so important to local/regional economic growth?

   Anytime a community recruits a business, power is such a large concern for the business. Having a utility representative at the table helps with the deal. We advise local EDOs on what's the best approach to recruit businesses.

8. How do you feel about regulation?

   Self regulated wholesaler

9. What if any are the benefits of electric deregulation?

   Deregulation does not apply to us

10. How would electric deregulation affect your involvement in economic development?

    No effect. We are mandated by government to participate in ed. We will not perform ed services outside our service territory.

Representative 3

1. Why do you participate in ed?

   To help grow the local community. New sales come only from new companies or expansions. The only way for more sales is to get more customers.

2. Who do you target?

   No specific target. Anything that's industrially related- mainly industrial based companies.

3. What attraction activities do you perform any what do you hope to achieve for your power company by doing these activities?

   We host site selectors; show them around the state and build relationships. We support regional and state wide marketing efforts.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these?

   We meet regularly with regional developers who uncover expansion opportunities. We do not do any researching ourselves but respond to the opportunities they identify. We then visit these businesses and discuss opportunities with them. We provide loans to qualified applicants.

5. What community development/small business development opportunities do you perform and what do you hope to achieve for your power company by doing these?

   We create jobs to strengthen the community. We provide rural ed interest free loans and grants to facilitate business development.

6. How do you benefit from participating in ed?

   By growing the community, i.e. helping companies to grow the community.

7. Why is your involvement in economic development so important to local/regional economic growth?

   We are one of the few catalysts for growth in an area.

8. How do you feel about regulation?

   Regulation is good. It provides a defined territory which makes business easier. Regulation gives the EUC negotiation power and market power.

9. What, if any, are the benefits of electric deregulation?

   In deregulation companies fight/bid. Deregulation provides companies the opportunity to serve anywhere.

10. How would electric deregulation affect your involvement in ed?

    It would completely change the way we operate.

Representative 4

1. Why do you participate in ed?

   In regulation, it's the only way to grow our business. We can only serve customers in our service territory.

2. Who do you target?

   Industrial & large commercial businesses because there is a multiplier effect with these industries.

3. What attraction activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We work with EDOs and communities to compete for projects. We pursue large electric users like data centers. We conduct industry analysis to determine what businesses to pursue.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   Account managers work closely with businesses and with local EDOs. We also analyze customer electric usage to identify if something is wrong. Every year we do an annual assessment. Whenever problems are identified we put together a team to visit that business. We hope to sustain these existing businesses, but also help to compete for expansion and growth.

5. What community development/small business development activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We have a program that goes into the community to develop assets. We participate in workforce development and training. We compare areas of the workforce that need to be improved to what types of jobs we have. We make sure communities understand the need for incentives on the front end and tail end. We work with local developers, elected officials, etc., analyzing funding structures and environmental assessments, etc. We help them be more competitive and make good investments.

6. How do you benefit from participating in economic development?

   We add to our customer base and sell more electricity. We develop the community. It increases the quality of life for customers and employees when economy grows.

7. Why is your involvement in ed so important to local/regional economic growth?
   - Utilities partner with allies
   - Utility is electric service provider
   - The electric bill is a large part of business decision

- Utilities are a bridge between what state is doing and local community
- We benefit as a company when community has economic prosperity.
- There are many direct and indirect benefits

8. How do you feel about regulation?

   Having a regulated environment, there is much oversight that all business decisions look at the long term benefits of providing power at the lowest price. At this time regulation is what's best for the U.S. The philosophical approach and the business approach contradict each other. Regulation provides the best option to date. So far all attempts to deregulate have increased customers' bills instead of decreased them.

9. What, if any, are the benefits of electric deregulation?

   Deregulation is good for industrial customers but bad for small businesses and residential customers. There are benefits in theory. The electric utilities merge together. It would possibly decrease the customer bill and lower risk for the company; we would still own our customer base.

10. How would electric deregulation affect your involvement in economic development?

    Deregulation would expand our opportunity to services more customers. Deregulation would conflict with how we distribute electricity to customers; we would have to tariff lines or something. It would be bad for residential customers and customers in rural areas; there prices would increase. The southern states are not as aggressive with deregulation because they generally have lower prices and because infrastructure costs more in a rural area.

Representative 5

1. Why do you participate in economic development?

   It is good business for us. It is also good corporate citizenship.

2. Who do you target?

   No specific group- we are in alignment with our state agency targets. Wide range of targets (approximately 10). They include wood product, food processing, call centers, etc. We work together with the state agency to recruit businesses.

3. What attraction activities do you perform and what do you hope to achieve for your power company by doing these activities?

   - We do some advertising
   - We call on businesses directly
   - We have a website that allows businesses to look at sites
   - We target site selection consultants and build on those relationships.
   - We hope to obtain new business location.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We are involved in retention and expansion but we encourage our communities/local EDOs to have the BRE program rather than us administering BRE. The local EDOs would participate in developing a methodology for making visits to each of their industries, collect and analyze information, and respond to those business needs.

5. What community development/small business development activities do you perform what do you hope to achieve for your power company by doing these activities?

   Yes, we do have a community development function. We facilitate strategic plan development. We are involved in the hiring of local developers. We help communities develop a revenue stream for local economic development (we pass a local sales tax for funding ED). We support leadership programs. We encourage our employees to serve on the board of the local EDO. A healthy, vibrant, growing community is profitable for us; it's the only way to expand business.

6. How do you benefit from participating in economic development?

   We generate political good will; regulators and politicians make decisions about our business and when you help bring jobs it helps to build relationships with them and helps them to make good decisions concerning our business. It's good business for us.

7. Why is your involvement in economic development so important to local/regional economic growth?

   We bring a lot of expertise in the field. We have longer term employees in relation to the local EDO, so we bring continuity. We can financially support endeavours/growth.

8. How do you feel about regulation?

   Utilities that are regulated will have a higher level of support than utilities in a deregulated market. Deregulated businesses are more likely to save every dollar they can. Regulated utilities are more likely to recover their rates. We prefer regulation.

9. What, if any, are the benefits of electric deregulation?

   Not that I know of. States that have deregulated have higher rates. When we're competing for business and hear about states that have deregulated, their costs are almost always higher. We have a cap on how much profit we can earn, but we have no floor. We have a service territory that's protected from competition. We can only earn 10% return on our assets. A deregulated business is not caped on how much they can earn. These businesses are not only going to charge 10% but more. Rates fluctuate more, so they go up when more energy is used (e.g. on hot days).

10. How would electric deregulation affect your involvement in economic development?

    There is a strong likely hood that our investment in ED would be less than it is today. Very similar but at a lower level.

Representative 6

1. Why do you participate in economic development?

   Utilities have been involved in ED for a long time. We participate in ED to recover excess generation capacity. We want to regain new load to utilize excess electricity generated. We want to help the community by creating new jobs so people can purchase more electricity. We have assets diploid in the community (electric poles, etc.). We know that more customers mean a better return on investment for us. We cannot relocate. Our assets are confined to that area.

2. Who do you target?

   - Complimentary targets
   - High load factory customers
   - Manufacturers
   - Data centers
   - Chemical processors
   - Automotive companies
   - We work closely with the regional EDO to customize the corporate process

- We have business developers that recruit.

3. What attraction activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We don't have a product. Our product is our community. We cooperate with the regional EDO. We provided financial support, training, resources, etc. It is a true win-win situation; if they're successful we are successful. We hire a consultant to perform site readiness. Utilities have to continue to look for ways to participate in ED.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We do not do retention and expansion. We provide funding to the regional EDO for retention and expansion projects. We have large business representatives who work accounts. When a company shows interest in leaving or expanding the business rep communicates with the utility, and the utility directory contacts the regional EDO to follow up with the company. The utility contributes continuity. The government officials change but the utility employees are consistent. We contribute sustainability.

5. What community development/small business development activities do you perform what do you hope to achieve for your power company by doing these activities?

   Site readiness-community development. We have an urban revitalization grant where we work with neighbourhoods to gain control of buildings and other repair needs. This is separate from ED. The Utility's focus is turning the meter.

6. How do you benefit from participating in economic development?

   - Helping grow the economy helps grow the customer base and helps our return on investment.
   - It builds strong community relationships/partnerships

7. Why is your involvement in economic development so important to local/regional economic growth?

   Regional transmission organization (RTO) regulates transmission function to keep prices down. We bring continuity/consistency. We help to define the agenda. We contribute financial resources that are so important to ED. We keep issues that are important to businesses in front of the community at all times. We

are important; most people respect utilities because of their interest in the community. Utilities cannot relocate like retail shops.

8. How do you feel about regulation?

   We operate in both regulated and deregulated states and regulation increases productivity. The EUC knows what resources it can offer the customer.

9. What, if any, are the benefits of electric deregulation?

   In deregulated states there is less money so the EUC has a smaller ED staff. Deregulation can lead to lower prices. In deregulation nobody is building new generation assets. It may eventually cause a low base load. Utilities cannot build this base load because there is not a way for them to recover cost. Robust commodity market is good for consumer but needs much generation to work. Deregulation allows rates to adjust to market conditions. Consumers have some uncertainty. Industrial customers have to negotiate with suppliers about cost.

10. How would electric deregulation affect your involvement in economic development?

    It affects the availability of resources and funding. It makes resources scarcer. Enron promoted deregulation in all the states; people would have to build lots of cheap generation and that technology does not exist. At first utilities felt in deregulation they don't need to participate in ED, now many EUCs are rebuilding their ED involvement.

Representative 7

1. Why do you participate in economic development?

   We can't grow our service territory without it. It is a business development function, not just an economic development one. Being involved in ED helps the regulated environment. In our state, the only deregulated functions are generation and transmission. Thirty years ago we planned to be involved in ED as part of our business formation.

2. Who do you target?

   We did a target analysis to identify firms that we have a competitive advantage in and we target those companies.

3. What attraction activities do you perform and what do you hope to achieve for your power
   company by doing these activities?

The previously mentioned targeting activity. We also work with suppliers about efficiencies in their supply chain. We have two national marketing folks that identify leads. We market to site selection consultants. We talk with our existing customers about other opportunities and business. What we hope to achieve-we look at the direct and indirect impact of jobs coming into the community.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We measure multiplier effects. We financially support training and software to help communities conduct business retention at the local level.

5. What community development/small business development activities do you perform what do you hope to achieve for your power company by doing these activities?

   We're involved but not directly involved. We just provide financial support to local organizations who then work with small business development.

6. How do you benefit from participating in economic development?

   Revenue- we are committed to generating a certain amount of revenue. A CFO says it's critically important.

7. Why is your involvement in economic development so important to local/regional economic growth?

   Utilities and ED people are a credible and objective source of information. We have information and experience because we serve so many countries and states. Our location advisory services are respected by the community. With more budget, we are able to market more than the local community.

8. How do you feel about regulation?

   Regulation is there to make sure we safely generate energy at a fair price. Regulation makes us responsible and responsive. It hinders us from doing things creatively but there is some good that comes out of it.

9. What, if any, are the benefits of electric deregulation?

   It's supposed to allow a community to be more competitive because they can purchase from better suppliers. Competition should introduce lower pricing; however we haven't really seen that happen. When utilities aren't making as

much, they don't participate in ED. Power marketers are increasing prices in deregulation.

10. How would electric deregulation affect your involvement in economic development?
    - It has not affected our involvement yet.
    - There are fewer direct benefits; less revenue coming in.
    - Decision to participate in ED loses compared to other decisions.

Representative 8

1. Why do you participate in economic development?

   We're a deregulated utility in Texas. Economic development resides in the distribution company. We only distribute power; we don't generate it. ED is the only way that we can market and expand our business. Any customer that comes to our area has to buy power from us. The only way to grow our business is to grow the economy.

2. Who do you target?

   Most interested in attracting primary jobs to our service area. Primary jobs are those that export their services. They have an impact on businesses outside of where they work. Secondary businesses provide products/services that are purchased locally and used locally. We get the most bang for our buck with primary jobs such as: professional, engineering, manufacturing, accounting, etc. We target businesses that used a lot of energy.

3. What attraction activities do you perform and what do you hope to achieve for your power
   company by doing these activities?

   We do some trade shows (direct marketing). Our ED staff is only 9 people. There are over 35 EDOs in the region. We work through these organizations to leverage opportunities. It's like we're part of their staff. We work with them to develop leads.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We don't directly work with retention, but we do work with expansion and recruitment like we do attraction. The bottom line is we hope to increase our revenue.

5. What community development/small business development activities do you perform what do you hope to achieve for your power company by doing these activities?

   We have a community relations department that is separate from our department. We do not have rural towns in our area; we don't have those kinds of communities. We don't do the typical community development activities.

6. How do you benefit from participating in economic development?

   We benefit by increased revenue. It actually puts downward pressure on our delivery rates. It creates economic vitality of the geography. It adds more revenue which actually reduces our rates.

7. Why is your involvement in economic development so important to local/regional economic growth?

   These projects are competitive. Landed projects grow GDP. If a project moves from one part of the region to another we don't get involved. It helps the economy of the service area where we reside, which impacts our bottom line and the regions prosperity.

8. How do you feel about regulation?

   Competing against a regulated utility for business is more difficult. The customer can't get price from distribution, they have a retailer. If a regulated utility can use rates to attract a new customer we would be at a disadvantage. Retail providers actually sell power; our cost is included in their rate. The retailer rates are not regulated. Our rates are regulated. We have not changed our participation in ED. Our cost for ED are recovered in our rates.

9. What, if any, are the benefits of electric deregulation?

   No benefit for deregulation. It would make my job easier if I had control over what customer pays. In a competitive environment the customer is suppose to pay less, but that hasn't happened.

10. How would electric deregulation affect your involvement in economic development?

    Yes, deregulation has changed how some utilities participate in ED. When they look at growth opportunities they may look at it from a business perspective. Distribution competes with geographies. EUCs put a lot of effort in retail function and downsize their ED efforts.

Representative 9

1. Why do you participate in economic development?

   Historically, the first EDO was the railroads. The electric industry began in the 1900s. The need for electricity was Ice Houses. We purchased various Ice companies. We had a generator to make lights for ice houses. The company began to market it for more utilization. We participate in ED because it's the right thing to do. We also get sales out of it. We do our work to support the community because if they grow we get that same systemic growth.

2. Who do you target?

   Our primary target is primary jobs-those that create additional wealth for the community by selling products that go outside the community. These jobs are manufacturing, call centers, data centers, distribution centers, head quarters relocations, etc. We do not pursue retail stores. We do not have funding for these projects. Our contribution is providing infrastructure.

3. What attraction activities do you perform and what do you hope to achieve for your power
   company by doing these activities?

   We work with other organizations in the region to market the region as a whole. We provide strategic planning. We attend trade shows-we invite our community EDOs to come. We help with site visits.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We work with the customer and community on retention and expansion. The community informs the utility about opportunities and the utility provides technical assistance, and service just as in business attraction. Our role becomes more supportive. We do business attraction and BRE equally-expansion is sometimes better.

5. What community development/small business development activities do you perform what do you hope to achieve for your power company by doing these activities?

   We give community seminars to help them develop their community. We provide strategic planning. The utility does some small business development by helping the community to leverage their dollars.

6. How do you benefit from participating in economic development?

We get sales out of it. We grow as the community grows.

7. Why is your involvement in economic development so important to local/regional economic growth?

   We bring our expertise on infrastructure to the market. We can help them understand and navigate the market. We help them leverage dollars. We bring resources to the table. We provide training.

8. How do you feel about regulation?

   Best if you're going to have a monopolistic system. It is too costly to duplicate systems; regulation balances that. Incumbents may lose retail customers. The EUC will lose revenue, but costs decrease as well.

9. What, if any, are the benefits of electric deregulation?

   Deregulation success depends on the regulatory environment. Companies don't get a discounted rate; they have to go out and negotiate this rate with the retail provider (power service marketer). Deregulation is good- it has driven prices down in some states. The discussion for customers to be more energy savvy is there. Customers have to spend more time analyzing their needs and what is best for them, but the customer has more choices as well. Electric functions grow into separate companies. We are a transmission and distribution (T&D) company, and we don't know much about the retailer business.

10. How would electric deregulation affect your involvement in economic development?

    In deregulation the T&D company remains regulated and continues to participate in Ed. We don't own any of the commodity (energy), we don't bill for energy. Our costs are included in the retail business prices. Deregulation does change because in regulation customers may get a discounted price, but in deregulation this discount is factored in. Stranded costs are considered in the generation function. Power plants can't afford to build excess capacity in a deregulated environment. In deregulation there is no assurance that you can cover that cost for excess/unused capacity. These cost are called stranded costs. The only person who can sell to customers is the retailer. The retailer purchases power directly from the generator and pays the T&D company for transporting it.

Representative 10

1. Why do you participate in economic development?

Utilities along with the railroad were the first economic developers. Both of these industries were active in deregulation. We are still regulated in the electric distribution function. The generation function is the only deregulated function. The operation side still depends on government regulation and still has a benefit in participation in ED. We are tied to the customers in these areas and benefit from investing in the community.

2. Who do you target?

   Data centers because they are energy intensive and operate over a long period of time. We are also interested in manufacturing, distribution centers, office head quarters, data centers, etc. We are not interested in retail or hotels.

3. What attraction activities do you perform and what do you hope to achieve for your power
   company by doing these activities?

   We are less proactive because of the economy. We utilize the website to attract business. We don't do as much advertising, trade shows, etc. anymore. Other conditions, such as workforce, logistics, etc., drive businesses to the area. We're selling our community not our company. The majority of our work is forming organizations and relationships with EDOs. We've done a lot with site location consultants.

4. What retention/expansion activities do you perform and what do you hope to achieve for your power company by doing these activities?

   We concentrate more on BRE activities. 80% of our projects come from existing businesses. We use synchronist. Our staff will participate in calling programs with partners. We work with small distribution centers to get small businesses to begin exporting.

5. What community development/small business development activities do you perform what do you hope to achieve for your power company by doing these activities?

   We have local affairs representatives who sit on boards and do a lot in community. The community needs to be ready when ED opportunities present themselves. We do this through our foundation. Our holding company provides funding for these projects. We do some of this through leadership.

6. How do you benefit from participating in economic development?

   We like watching our meter spin. profit. We have shareholders to satisfy. It is good business for us by helping our community. This is a shared interest with the government and many business leaders in our territory. ED helps us build on

these relationships. Projects that come in have spin offs which benefits the economy.

7. Why is your involvement in economic development so important to local/regional economic growth?

   Every project is going to need energy and infrastructure to operate. We help them become more energy efficient. Energy is not the key, but one of the key issues. Utilities are experienced and knowledgeable. Utilities are fair brokers; they don't care which community gets the project because as long as it is in their territory they're still going to service it.

8. How do you feel about regulation?

   Competition is a good thing overall. Some areas in our region benefit from regulated companies though who have much lower prices than competition. Regulation makes competition look bad, but if you take TVA out of it, electric deregulation looks better.

9. What, if any, are the benefits of electric deregulation?

   Competition is a very good thing for customers and industry. Lower prices in the long run, but more uncertainty than in a regulated market, which is a challenge. Fully bundled utilities can look at prices when building facilities, but states that have customer choice will have to invest more in infrastructure. In regulated states, revenue offsets that, but in deregulation states have less revenue guaranteed to support infrastructure improvements.

10. How would electric deregulation affect your involvement in economic development?

    We have been consistent with our ED efforts, but that is not the case with all utilities. Some pulled out of ED completely but some of them have reinstated their ED involvement. We seem to have less resources than we did before deregulation.

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